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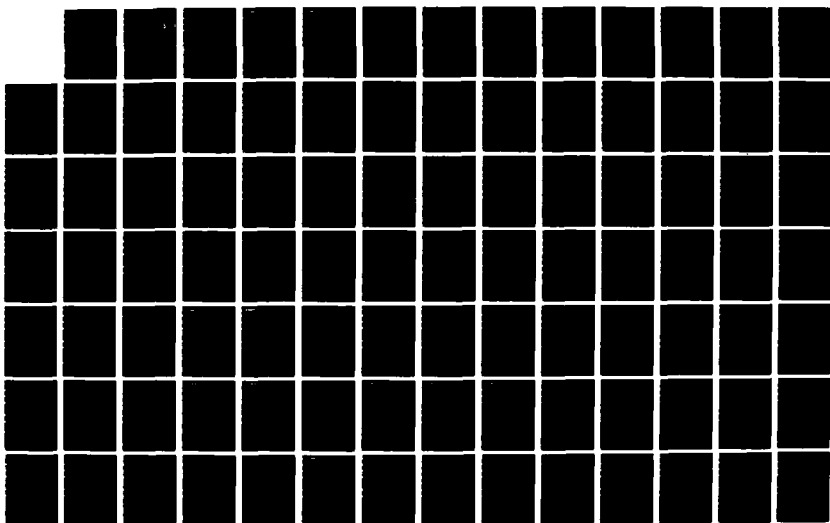
INSTALLATION RESTORATION PROGRAM PHASE 2
CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP
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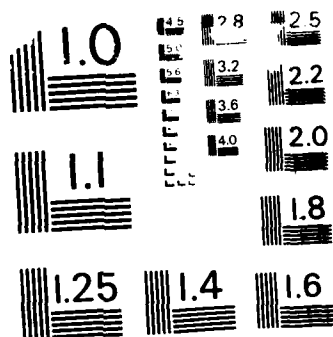
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INSTALLATION RESTORATION PROGRAM
PHASE II - CONFIRMATION/QUANTIFICATION
STAGE 1

FINAL REPORT
FOR
AIR FORCE PLANT 4
FORT WORTH, TEXAS

VOLUME 5. APPENDIX A-2

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AD-A190 445

HEADQUARTERS AERONAUTICAL SYSTEMS DIVISION
FACILITIES MANAGEMENT DIVISION (ASD/PMDA)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-6503

AND

HEADQUARTERS, AIR FORCE SYSTEMS COMMAND
COMMAND BIOENVIRONMENTAL ENGINEER (AFSC/SGPB)
ANDREWS AIR FORCE BASE, DC 20334-5000

DECEMBER 1987

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USAF O EHL TECHNICAL PROGRAM MANAGERS
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OCCUPATIONAL & ENVIRONMENTAL HEALTH LABORATORY (USAF O EHL)
BROOKS AIR FORCE BASE, TEXAS 78235-5501

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*This report contains information concerning
environmental protection and water quality.*

APPENDIX A-2

Water Quality Assurance/Quality Control Data

✓
Volume 5 and Volume 6 contain all ^{and} ~~QA/QC~~ ^{QC} reports for water analyses (organized by work order number). Also included are summary tables (Tables A.2-1 through A.2-9) of the QC reports.

↑
Pages in Appendix A are numbered by the volume number followed by the page number of that volume. For example, Page 5 001 is Page 1 of Volume 5.

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TABLE A.2-1A
EPA METHOD 601: MATRIX SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| Sample I.D. Date Extracted | 8601239-09A 2/03/86 | 8602001-06A 2/04/86 | 8602031-03D 2/10/86 | 8602047-05A 2/13/86 | 8602060-02E 2/13/86 | 8602075-07A 2/15/86 |
|-------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Parameter | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery |
| Methylene chloride | 121 | 104 | 113 | 82 | 93 | 98 |
| 1,1-Dichloroethane | 90 | 89 | 84 | 86 | 72 | 73 |
| trans-1,2-Dichloroethene | 107 | 105 | 112 | 77 | 89 | 97 |
| Chloroform | 141 | 140 | 160 | 117 | 169 | 153 |
| 1,2-Dichloroethane | 102 | 89 | 92 | 72 | 90 | 88 |
| 1,1,1-Trichloroethane | 125 | 113 | 113 | 92 | 107 | 107 |
| Carbon Tetrachloride | 125 | 112 | 114 | 97 | 109 | 105 |
| Bromochloromethane | 125 | 113 | 117 | 99 | 123 | 113 |
| 1,2-Dichloropropane | 114 | 103 | 108 | 97 | 102 | 106 |
| Trichloroethene | 180 | 180 | 116 | 89 | 100 | 108 |
| Dibromochloromethane | 79 | 68 | 86 | NR | 67 | 92 |
| Bromoform | 133 | 99 | 104 | 86 | 112 | 108 |
| Chlorobenzene | 125 | 124 | 119 | 111 | 119 | 126 |
| 1,1,2,2-Tetrachloroethane | a | a | a | a | a | a |
| Tetrachloroethylene | 99 | 95 | 88 | 78 | 90 | 95 |
| Standard Deviation (n-1) | 18.3 | 18.9 | 26.4 | 16.0 | 34.1 | 27.2 |
| Mean | 114 | 107 | 112 | 88 | 103 | 103 |
| Coefficient of Variation | 6.0 | 17.7 | 23.5 | 18.2 | 33.0 | 26.5 |

NR = Not Reported

a 1,1,2,2-tetrachloroethane and tetrachloroethylene co-elute and were both contained in the spike solution. The analyst quantitated the combined peak area as tetrachloroethylene.

TABLE A.2-1B

EPA METHOD 601: MATRIX SPIKE RECOVERY RESULTS FOR WATER SAMPLES

Sample I.D. 8602087-06A 8602113-02C 8602120-03A 8602138-09A 8602176-04A 8602197-02A
 Date Extracted 2/15/86 2/20/86 2/21/86 2/25/86 2/27/86 2/28/86

| Parameter | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery |
|---------------------------|------------|------------|------------|------------|------------|------------|
| Methylene chloride | 98 | 101 | 75 | 77 | 85 | 102 |
| 1,1-Dichloroethane | 77 | 70 | 61 | 65 | 64 | 80 |
| trans-1,2-Dichloroethene | 102 | 95 | 86 | 97 | 98 | 100 |
| Chloroform | 152 | 149 | 117 | 119 | 125 | 114 |
| 1,2-Dichloroethane | 92 | 86 | 73 | 77 | 76 | 149 |
| 1,1,1-Trichloroethane | 109 | 103 | 92 | 106 | 97 | 123 |
| Carbon Tetrachloride | 110 | 103 | 79 | 101 | 92 | 118 |
| Bromochloromethane | 120 | 115 | 101 | 104 | 99 | 127 |
| 1,2-Dichloropropane | 117 | 102 | 93 | 94 | 96 | 127 |
| Trichloroethene | 119 | 106 | 91 | 130 | 97 | 128 |
| Dibromochloromethane | 104 | 83 | 82 | 67 | 87 | 118 |
| Bromoform | 111 | 114 | 98 | 106 | 95 | 126 |
| Chlorobenzene | 135 | 106 | 87 | 95 | 100 | 126 |
| 1,1,2,2-Tetrachloroethane | a | a | a | a | a | a |
| Tetrachloroethylene | 97 | 80 | 64 | 74 | 70 | 93 |

Standard Deviation (n-1) 25.4 26.6 19.4 20.5 21.1 23.5
 Mean 105 101 84 90 91 111
 Coefficient of Variation 24.2 26.4 23.1 22.8 23.3 21.1

NR = Not Reported

a, 1,1,2,2-tetrachloroethane and tetrachloroethylene co-elute and were both contained in the spike solution. The analyst quantitated the combined peak area as tetrachloroethylene.

TABLE A.2-1C

EPA METHOD 601: MATRIX SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| Sample I.D. Date Extracted | 8603002-04B 3/05/86 | 8603003-04A 3/05/86 | STANDARD DEVIATION | MEAN | COEFFICIENT OF VARIATION |
|-------------------------------|------------------------|------------------------|-----------------------|------------|--------------------------------|
| Parameter | % Recovery | % Recovery | (n-1) | % Recovery | CV - % |
| Methylene chloride | 91 | 82 | 13.5 | 94 | 14.3 |
| 1,1-Dichloroethane | 73 | 62 | 9.9 | 75 | 13.3 |
| trans-1,2-Dichloroethene | 97 | 81 | 9.8 | 96 | 10.2 |
| Chloroform | 143 | 131 | 17.7 | 138 | 12.8 |
| 1,2-Dichloroethane | 94 | 84 | 19.0 | 90 | 21.0 |
| 1,1,1-Trichloroethane | 114 | 107 | 9.9 | 108 | 9.2 |
| Carbon Tetrachloride | 115 | 103 | 11.6 | 106 | 11.0 |
| Bromochloromethane | 122 | 114 | 9.6 | 114 | 8.5 |
| 1,2-Dichloropropane | 107 | 110 | 9.5 | 105 | 9.0 |
| Trichloroethene | 156 | 109 | 30.1 | 122 | 24.7 |
| Dibromochloromethane | 71 | 86 | 26.6 | 78 | 34.2 |
| Bromoform | 113 | 109 | 12.1 | 108 | 11.1 |
| Chlorobenzene | 110 | 114 | 13.5 | 114 | 11.8 |
| 1,1,2,2-Tetrachloroethane | a | a | -- | -- | -- |
| Tetrachloroethylene | 91 | 79 | 11.0 | 85 | 12.9 |

Standard Deviation (n-1) 24.0 24.2
Mean 102 91
Coefficient of Variation 23.5 26.5

NR = Not Reported

a 1,1,2,2-tetrachloroethane and tetrachloroethylene co-elute and were both contained in the spike solution. The analyst quantitated the combined peak area as tetrachloroethylene.

TABLE A.2-2
EPA METHOD 601 : SURROGATE SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| LAB ID | QC | DATE | BK-CHLOROMETHANE % Recovery | 2-BROMO-1-CHLOROPROPANE % Recovery |
|-------------|----|-------|--------------------------------|---------------------------------------|
| 8601239-09A | | 20386 | 98 | 107 |
| 8601239-08A | | 13186 | 103 | 83 |
| 8601239-07A | | 13186 | 120 | 106 |
| 8601239-06A | | 13186 | 102 | 96 |
| 8601239-05A | D1 | 13186 | 86 | 98 |
| 8601239-05A | D2 | 13186 | 115 | 113 |
| 8601239-04A | | 13186 | 102 | 100 |
| 8601239-03A | | 13186 | 95 | 92 |
| 8601239-02A | | 13186 | 101 | 99 |
| 8601239-01A | | 13186 | 97 | 94 |
| 8602001-01A | | 20386 | 104 | 112 |
| 8602001-02A | D1 | 20386 | 101 | 100 |
| 8602001-02A | D2 | 20386 | 97 | 94 |
| 8602001-03A | | 20386 | 108 | 98 |
| 8602001-04A | | 20486 | 114 | 151 |
| 8602001-05A | | 20486 | 100 | 130 |
| 8602001-06A | | 20486 | 103 | 111 |
| 8602015-01A | | 21186 | 96 | 117 |
| 8602015-02A | | 21186 | 88 | 118 |
| 8602015-03A | | 21186 | 100 | 128 |
| 8602019-03C | | 20686 | 95 | 103 |
| 8602019-04C | | 20686 | 99 | 129 |
| 8602019-05C | | 20686 | 101 | 98 |
| 8602031-02C | | 20686 | 109 | 100 |
| 8602031-03C | | 20686 | 90 | 81 |
| 8602031-04B | | 20686 | 117 | 102 |
| 8602031-05B | | 20686 | 120 | 121 |
| 8602031-07A | FB | 20686 | 105 | 110 |
| 8602031-08A | TB | 20686 | 125 | 117 |
| 8602041-01A | D1 | 21186 | 102 | 108 |
| 8602041-01A | D2 | 21186 | 93 | 89 |
| 8602041-02A | | 21186 | 97 | 118 |
| 8602041-03A | | 21286 | 114 | 123 |
| 8602041-04A | | 21286 | 96 | 120 |
| 8602041-05A | | 21286 | 105 | 114 |
| 8602041-05A | | 21286 | 108 | 124 |
| 8602041-07A | FB | 21286 | 108 | 98 |
| 8602041-08F | TB | 21286 | 118 | 102 |
| 8602047-01A | | 21286 | 91 | 106 |
| 8602047-02A | | 21286 | 111 | 138 |
| 8602047-03A | | 21286 | 86 | 105 |
| 8602047-04A | | 21386 | 95 | 100 |

(Continued)

TABLE A.2-2 (Continued)

| LAB ID | QC | DATE | BROMOCHLOROMETHANE % Recovery | 2-BROMO-1-CHLOROPROPANE % Recovery |
|-------------|----|-------|----------------------------------|---------------------------------------|
| 8602047-05A | | 21386 | 123 | 118 |
| 8602047-06A | FB | 21386 | 98 | 111 |
| 8602047-07A | TB | 21286 | 119 | 119 |
| 8602060-01E | | 21286 | 124 | 119 |
| 8602060-02E | | 21386 | 103 | 110 |
| 8602060-03E | | 21386 | 116 | 127 |
| 8602060-05B | D1 | 21386 | 123 | 138 |
| 8602060-05B | D2 | 21386 | 104 | 109 |
| 8602067-02A | | 21486 | 92 | 105 |
| 8602067-03A | | 21386 | 102 | 114 |
| 8602067-04A | | 21486 | 83 | 86 |
| 8602067-05A | | 21486 | 127 | 158 |
| 8602067-06A | TB | 21386 | 121 | 109 |
| 8602067-01A | | 21386 | 111 | 130 |
| 8602087-02C | | 21486 | 106 | 106 |
| 8602087-01C | | 21486 | 96 | 107 |
| 8602087-04B | | 21486 | 114 | 110 |
| 8602087-05B | D1 | 21586 | 91 | 122 |
| 8602087-05B | D2 | 21586 | 88 | 108 |
| 8602075-01A | | 21486 | 96 | 95 |
| 8602075-02A | D1 | 21486 | 98 | 110 |
| 8602075-02A | D2 | 21486 | 107 | 123 |
| 8602075-03A | | 21486 | 100 | 123 |
| 8602075-04A | | 21486 | 108 | 108 |
| 8602075-05A | | 21486 | 106 | 137 |
| 8602075-06A | | 21486 | 114 | 121 |
| 8602075-07A | | 21586 | 97 | 118 |
| 8602075-08A | FB | 21586 | 96 | 104 |
| 8602075-08A | TB | 21486 | 106 | 96 |
| 8602087-06A | TB | 21586 | 93 | 100 |
| 8602120-01A | | 22186 | 108 | 99 |
| 8602113-01C | | 21986 | 106 | 94 |
| 8602113-02C | | 21986 | 101 | 104 |
| 8602113-03C | | 22086 | 94 | 104 |
| 8602113-04D | | 22186 | 119 | 83 |
| 8602120-03A | | 22186 | 112 | 106 |
| 8602120-04A | D1 | 22486 | 100 | 112 |
| 8602120-04A | D2 | 22486 | 95 | 117 |
| 8602120-05A | | 22486 | 99 | 118 |
| 8602138-09A | | 22586 | 106 | 114 |
| 8602138-01A | | 22486 | 88 | 119 |
| 8602138-02A | | 22486 | 93 | 99 |
| | | | | 104 |

(Continued)

TABLE A.2-2 (Continued)
BROMOCHLOROMETHANE 2-BROMO-1-CHLOROPROPANE

| LAB ID | QC | DATE | % Recovery | % Recovery |
|-------------|----|-------|------------|------------|
| 8602138-03A | | 22486 | 100 | 110 |
| 8602138-04A | | 22486 | 102 | 108 |
| 8602138-05A | D1 | 22486 | 92 | 105 |
| 8602138-05A | D2 | 22486 | 98 | 111 |
| 8602138-06A | | 22486 | 86 | 94 |
| 8602138-07A | | 22486 | 121 | 122 |
| 8602138-08A | * | 22586 | 106 | 133 |
| 8602159-01A | | 22686 | 119 | 110 |
| 8602159-02A | | 22686 | 121 | 133 |
| 8602159-03A | | 22686 | 105 | 109 |
| 8602159-04A | | 22686 | 101 | 122 |
| 8602159-05A | D1 | 22686 | 111 | 116 |
| 8602159-05A | D2 | 22686 | 99 | 105 |
| 8602159-06A | FB | 22686 | 112 | 118 |
| 8602159-07A | TB | 22686 | 111 | 114 |
| 8602176-01A | | 22786 | 97 | 115 |
| 8602176-02A | | 22786 | 106 | 117 |
| 8602176-03A | | 22786 | 110 | 135 |
| 8602176-04B | | 22786 | 101 | 105 |
| 8602176-05A | | 22786 | 115 | 135 |
| 8602197-01A | | 22886 | 119 | 122 |
| 8602197-02A | | 22886 | 113 | 101 |
| 8602197-03A | | 22886 | 100 | 93 |
| 8602197-04A | | 22886 | 135 | 121 |
| 8602197-05A | | 22886 | 122 | 111 |
| 8602197-06A | | 22886 | 101 | 107 |
| 8603002-08A | | 30486 | 99 | 79 |
| 8603002-07A | | 30486 | 105 | 96 |
| 8603002-06A | | 30486 | 116 | 80 |
| 8603002-05A | | 30486 | 120 | 82 |
| 8603002-04A | | 30486 | 112 | 129 |
| 8603002-03A | | 30486 | 107 | 104 |
| 8603002-02A | D1 | 30486 | 103 | 75 |
| 8603002-02A | D2 | 30486 | 86 | 83 |
| 8603002-01A | TB | 30486 | 99 | 89 |
| 8603003-08A | | 30586 | 90 | 80 |
| 8603003-07A | | 30586 | 99 | 118 |
| 8603003-06A | FB | 30586 | 110 | 122 |
| 8603003-05A | D1 | 30586 | 118 | 117 |
| 8603003-05A | D2 | 30586 | 127 | 112 |
| 8603003-04A | | 30586 | 98 | 96 |
| 8603003-03A | | 30486 | 109 | 103 |

Int

TABLE A.2-2 (Continued)

| LAB ID | QC | DATE | BROMOCHLOROMETHANE % Recovery | 2-BROMO-1-CHLOROPROPANE % Recovery |
|--------------------------|----|-------|----------------------------------|---------------------------------------|
| 8603003-02A | | 30486 | 100 | 93 |
| 8603003-01A | | 30586 | 94 | 114 |
| 8602100-02B | | 21786 | 109 | 103 |
| 8602100-03B | | 21786 | 109 | 110 |
| 8602100-04D | D1 | 21786 | 101 | 118 |
| 8602100-04D | D2 | 21786 | 109 | 137 |
| 8602100-05B | | 21786 | 99 | 113 |
| 8602100-07A | | 21786 | 113 | 109 |
| Standard Deviation (n-1) | | | | |
| Mean | | | 10.4 | 14.7 |
| Coefficient of Variation | | | 105 | 110 |
| | | | 9.9 | 13.4 |

D = Duplicate analysis

FB = Field blank

TB = Trip blank

TABLE A.2-3A

| EPA METHOD 602: MATRIX SPIKE RECOVERY RESULTS FOR WATER SAMPLES | | | | | |
|---|------------------------|------------------------|------------------------|------------------------|------------|
| Sample I.D. Date Extracted | 8601239-09C 2/03/86 | 8602001-04C 2/04/86 | 8602015-03C 2/05/86 | 8602031-06D 2/06/86 | |
| Parameter | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery |
| Benzene | 134 | 127 | 107 | 110 | |
| Toluene | 150 | 182 | 107 | 69 | |
| Ethyl benzene | 126 | 141 | 100 | 97 | |
| o-Xylene | 120 | 133 | 99 | 86 | |
| m-Xylene | 131 | 142 | 107 | 103 | |
| p-Xylene | 128 | 150 | 109 | 105 | |
| Chlorobenzene | NS | NS | NS | NS | |
| 1,4-Dichlorobenzene | NS | NS | NS | NS | |
| 1,3-Dichlorobenzene | NS | NS | NS | NS | |
| 1,2-Dichlorobenzene | NS | NS | NS | NS | |
| Standard Deviation (n-1) | 10.2 | 19.4 | 4.2 | 15.2 | |
| Mean | 132 | 146 | 105 | 95 | |
| Coefficient of Variation | 7.8 | 13.3 | 4.0 | 16.0 | |
| <i>a,a,s</i> -Trifluorotoluene | NR | NR | NR | NR | |
| NS = Not Spike Compound | | | | | |
| NR = Not Reported | | | | | |

TABLE A.2-3B
EPA METHOD 602: MATRIX SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| Sample I.D. Date Extracted | 8602041-01C 2/10/86 | 8602047-03C 2/11/86 | 8602067-04C 2/13/86 | 8602075-01 2/13/86 |
|-------------------------------|------------------------|------------------------|------------------------|-----------------------|
| Parameter | % Recovery | % Recovery | % Recovery | % Recovery |
| Benzene | 103 | 105 | 126 | 136 |
| Toluene | 122 | 138 | 132 | 140 |
| Ethyl benzene | 90 | 113 | 112 | 96 |
| o-Xylene | 88 | 112 | 90 | 118 |
| m-Xylene | 99 | 120 | 138 | 104 |
| p-Xylene | 98 | 118 | 119 | 104 |
| Chlorobenzene | NS | NS | NS | NS |
| 1,4-Dichlorobenzene | NS | NS | NS | NS |
| 1,3-Dichlorobenzene | NS | NS | NS | NS |
| 1,2-Dichlorobenzene | NS | NS | NS | NS |
| Standard Deviation (n-1) | 12.2 | 11.3 | 17.1 | 18.3 |
| Mean | 100 | 118 | 120 | 116 |
| Coefficient of Variation | 12.2 | 9.6 | 14.3 | 15.7 |
| a,a,a-Trifluorotoluene | NR | NR | NR | NR |

NS = Not Spike Compound
NR = Not Reported

TABLE A.2-3C

EPA METHOD 602: MATRIX SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| Sample I.D. Date Extracted | 8602138-04C 2/26/86 | 8603002-06C 3/05/86 | 8603003-04C 3/05/86 | STANDARD DEVIATION | MEAN | COEFFICIENT OF VARIATION CV - % |
|-------------------------------|------------------------|------------------------|------------------------|-----------------------|------------|--|
| Parameter | % Recovery | % Recovery | % Recovery | SD (n-1) | % Recovery | |
| Benzene | 124 | 116 | 120 | 11.6 | 119 | 9.7 |
| Toluene | 106 | 92 | 100 | 31.2 | 122 | 25.7 |
| Ethyl benzene | 112 | 112 | 116 | 14.6 | 110 | 13.2 |
| o-Xylene | 87 | 86 | 89 | 17.0 | 101 | 16.8 |
| m-Xylene | 184 | 182 | 127 | 29.7 | 131 | 22.7 |
| p-Xylene | 118 | 116 | 120 | 14.0 | 117 | 12.0 |
| Chlorobenzene | NS | NS | NS | --- | --- | --- |
| 1,4-Dichlorobenzene | NS | NS | NS | --- | --- | --- |
| 1,3-Dichlorobenzene | NS | NS | NS | --- | --- | --- |
| 1,2-Dichlorobenzene | NS | NS | NS | --- | --- | --- |
| Standard Deviation (n-1) | 33.0 | 34.2 | 14.4 | | | |
| Mean | 122 | 117 | 112 | | | |
| Coefficient of Variation | 27.1 | 29.1 | 12.9 | | | |

s,s,s-Trifluorotoluene NR

NR

NR

NS = Not Spike Compound

NR = Not Reported

TABLE A.2-4
EPA METHOD 602: SURROGATE SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| SAMPLE I.D. | QC | DATE | a.s.a-Trifluorotoluene % Recovery |
|-------------|-------|-------|--------------------------------------|
| 8601239-09C | | 20386 | 128 |
| 8601239-08C | | 20386 | 122 |
| 8601239-07C | | 20386 | 109 |
| 8601239-06C | | 20386 | 117 |
| 8601239-05C | D1 | 20386 | 114 |
| 8601239-05C | D2 | 20386 | 105 |
| 8601239-04C | | 20386 | 100 |
| 8601239-03C | | 20386 | 97 |
| 8601239-02C | | 20386 | 100 |
| 8601239-01C | | 20386 | 98 |
| 8602001-06C | | 20486 | 85 |
| 8602001-05C | | 20486 | 91 |
| 8602001-04C | | 20486 | 86 |
| 8602001-03C | D1 | 20486 | 101 |
| 8602001-03C | D2 | 20486 | 96 |
| 8602001-01C | | 20386 | 94 |
| 8602001-02C | | 20386 | 122 |
| 8602015-01C | | 20586 | 98 |
| 8602015-02C | | 20586 | 85 |
| 8602015-03C | | 20586 | 95 |
| 8602019-03E | | 20586 | 103 |
| 8602019-04E | | 20586 | 97 |
| 8602019-05E | | 20586 | 96 |
| 8602031-08A | TB | 20686 | 96 |
| 8602031-07B | FB | 20686 | 94 |
| 8602031-06D | | 20686 | 100 |
| 8602031-2E | | 20686 | 106 |
| 8602031-3E | D1 | 20686 | 109 |
| 8602031-3E | D2 | 20686 | 109 |
| 8602031-4E | | 20686 | 114 |
| 8602031-5D | | 20686 | 112 |
| 8602041-01C | | 21086 | 112 |
| 8602041-02C | | 21086 | 95 |
| 8602041-03C | | 21086 | 91 |
| 8602041-04C | | 21086 | 94 |
| 8602041-05C | | 21086 | 91 |
| 8602041-06C | D1 | 21186 | 104 |
| 8602041-06C | D2 | 21186 | 101 |
| 8602113-01E | | 22086 | 100 |
| 8602041-07B | TB,D1 | 21186 | 101 |
| 8602041-07B | TB,D2 | 21386 | 102 |
| 8602041-08A | TB | 21286 | 98 |

(Continued)

TABLE A.2-4 (Continued)

| SAMPLE I.D. | QC | DATE | a,s,s-Trifluorotoluene % Recovery |
|-------------|-------|-------|--------------------------------------|
| 8602047-01C | | 21186 | 98 |
| 8602047-02C | | 21186 | 106 |
| 8602047-03C | | 21186 | 106 |
| 8602047-04C | | 21186 | 98 |
| 8602047-05C | | 21186 | 114 |
| 8602047-06B | FB | 21186 | 103 |
| 8602047-07A | TB | 21286 | 104 |
| 8602060-01G | | 21186 | 101 |
| 8602060-02G | | 21286 | 102 |
| 8602060-03G | | 21286 | 115 |
| 8602060-05D | | 21286 | 116 |
| 8602067-06A | TB,D1 | 21386 | 98 |
| 8602067-06A | TB,D2 | 21386 | 103 |
| 8602067-05C | | 21386 | 90 |
| 8602067-04C | | 21286 | 105 |
| 8602067-03C | | 21286 | 113 |
| 8602067-02C | * | 21286 | 298 |
| 8602067-01C | | 21286 | 89 |
| 8602075-01C | | 21786 | 98 |
| 8602075-02C | | 21486 | 104 |
| 8602075-03C | | 21386 | 107 |
| 8602075-04C | | 21486 | 108 |
| 8602075-05C | | 21786 | 105 |
| 8602075-06C | | 21386 | 104 |
| 8602075-07C | | 21786 | 107 |
| 8602075-08B | FB | 21486 | 103 |
| 8602075-09A | TB | 21486 | 98 |
| 8602087-01E | D1 | 21486 | 116 |
| 8602087-01E | D2 | 21486 | 101 |
| 8602087-02E | | 21486 | 110 |
| 8602087-04D | | 21486 | 97 |
| 8602087-05D | | 21486 | 107 |
| 8602087-06B | FB | 21486 | 105 |
| 8602100-02D | | 21786 | 111 |
| 8602100-03D | | 21786 | 115 |
| 8602100-04F | | 21786 | 114 |
| 8602100-05D | D1 | 21786 | 119 |
| 8602100-05D | D2 | 21786 | 111 |
| 8602100-06B | | 21786 | 108 |
| 8602100-07A | TB | 21786 | 107 |
| 8602113-02E | D1 | 22186 | 106 |
| 8602113-02E | D2 | 22186 | 107 |

(Continued)

TABLE A.2-4 (Continued)

| SAMPLE I.D. | QC | DATE | a,a,a-Trifluorotoluene % Recovery |
|-------------|----|-------|--------------------------------------|
| 8602113-03E | | 22186 | 101 |
| 8602113-04E | | 22186 | 102 |
| 8602113-05B | | 22186 | 103 |
| 8602120-01C | D1 | 22186 | 103 |
| 8602120-01C | D2 | 22186 | 102 |
| 8602120-02C | | 22586 | 131 |
| 8602120-03C | | 22586 | 123 |
| 8602120-04C | | 22586 | 111 |
| 8602120-05C | D1 | 22586 | 106 |
| 8602120-05C | D2 | 22586 | 102 |
| 8602138-02C | D1 | 22586 | 104 |
| 8602138-02C | D2 | 22586 | 109 |
| 8602138-03C | | 22686 | 103 |
| 8602138-04C | | 22686 | 112 |
| 8602138-05C | | 22686 | 101 |
| 8602138-06A | | 22686 | 104 |
| 8602138-07C | | 22686 | 111 |
| 8602138-08C | | 22786 | 98 |
| 8602138-09C | | 22786 | 97 |
| 8602138-01C | | 22586 | 114 |
| 8602159-02C | | 22786 | 93 |
| 8602159-03C | D1 | 22786 | 120 |
| 8602159-03C | D2 | 22786 | 98 |
| 8602159-04C | | 22786 | 107 |
| 8602159-05C | | 22786 | 112 |
| 8602159-06B | FB | 22786 | 111 |
| 8602159-07A | TB | 30586 | 92 |
| 8602159-01C | | 22786 | 102 |
| 8602176-06A | | 22886 | 97 |
| 8602176-05C | | 22786 | 110 |
| 8602176-04C | | 22786 | 103 |
| 8602176-03C | | 22786 | 104 |
| 8602176-02C | | 22786 | 114 |
| 8602176-01C | D1 | 22786 | 108 |
| 8602176-01C | D2 | 22786 | 110 |
| 8602176-06C | | 22186 | 104 |
| 8602197-05C | | 22886 | 104 |
| 8602197-04C | | 22886 | 115 |
| 8602197-03C | | 22886 | 104 |
| 8602197-02C | | 22886 | 119 |
| 8602197 | | 22886 | 103 |
| 8603002-08B | TB | 30586 | 94 |

(Continued)

TABLE A.2-4 (Continued)

| SAMPLE I.D. | QC | DATE | a,a,a-Trifluorotoluene % Recovery | NT |
|--------------------------|----|-------|--------------------------------------|------|
| 8603002-07C | | 30586 | | 97 |
| 8603002-06C | | 30586 | | 93 |
| 8603002-05C | | 30586 | | 101 |
| 8603002-04C | | 30486 | | 95 |
| 8603002-03C | | 30486 | | 94 |
| 8603002-02C | | 30486 | | 77 |
| 8603003-08B | TB | 30586 | | 97 |
| 8603003-07C | | 30586 | | 97 |
| 8603003-06C | FB | 30586 | | 106 |
| 8603003-05C | | 30586 | | 107 |
| 8603003-04C | | 30586 | | 104 |
| 8603003-03C | | 30586 | | 107 |
| 8603003-02C | FB | 30586 | | 107 |
| 8603003-01C | | 30586 | | 95 |
| Standard Deviation (n-1) | | | | 18.6 |
| Mean | | | | 105 |
| Coefficient of Variation | | | | 17.6 |

D = Duplicate analysis

FB = Field blank

TB = Trip blank

TABLE A.2-5A
EPA METHOD 625 : MATRIX SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| Sample I.D. | 8602016-06A | 8602058-05A | 8602078-05A | 8602116-05A | 8602152-06A |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|
| Date Extracted | 2/03/86 | 2/12/86 | 2/13/86 | 2/20/86 | 2/25/86 |
| Date Injected | 2/18/86 | 2/26/86 | 2/28/86 | 3/07/86 | 3/11/86 |
| Parameter | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery |
| ACID FRACTION | | | | | |
| 2,4,6-Trichlorophenol | 41 | 87 | 60 | 57 | 3 |
| 4-Chloro-3-methylphenol | 28 | 82 | 64 | 60 | 79 |
| 2-Chlorophenol | 57 | 78 | 65 | 74 | 25 |
| 2,4-Dichlorophenol | 62 | 82 | 55 | 54 | 20 |
| 2,4-Dimethylphenol | 56 | 57 | 36 | 29 | 49 |
| 2-Nitrophenol | 64 | 70 | 54 | 78 | 11 |
| 4-Nitrophenol | 38 | 57 | 61 | 130 | 10 |
| 2,4-Dinitrophenol | 52 | 10 | ND | 54 | ND |
| 2-Methyl-4,6-dinitrophenol | 74 | 140 | 32 | 110 | ND |
| Pentachlorophenol | 85 | 260 | ND | 37 | ND |
| Phenol | 54 | 65 | 60 | 67 | 47 |
| BASE FRACTION | | | | | |
| Acenaphthene | 45 | 65 | 77 | 110 | 83 |
| Benzidine | 1 | 10 | 140 | ND | NA |
| 1,2,4-Trichlorobenzene | 102 | 76 | 55 | 99 | 74 |
| Hexachlorobenzene | 111 | 84 | 74 | 130 | 117 |
| Hexachloroethane | 86 | 69 | 63 | 110 | 70 |
| Bis(2-chloroethyl)ether | 57 | 55 | 60 | 110 | 70 |
| 2-Chloronaphthalene | 46 | 75 | 68 | 120 | 87 |
| 1,2-Dichlorobenzene | 66 | 66 | 64 | 110 | 72 |
| 1,3-Dichlorobenzene | 67 | 62 | 62 | 100 | 73 |
| 1,4-Dichlorobenzene | 68 | 66 | 61 | 90 | 61 |
| 3,3-Dichlorobenzidine | 20 | 117 | 91 | 220 | 415 |
| 2,4-Dinitrotoluene | 41 | 81 | 80 | 130 | 103 |
| 2,6-Dinitrotoluene | 49 | 77 | 79 | 140 | 106 |
| Fluoranthene | 110 | 78 | 77 | 100 | 94 |
| 4-Chlorophenyl phenyl ether | 44 | 67 | 82 | 120 | 104 |
| N-Nitrosodimethylamine | ND | 23 | 3 | 94 | 17 |
| N-Nitrosodiphenylamine | 85 | 77 | 96 | 160 | 267 |
| N-Nitrosodi-n-propylamine | 34 | 61 | 63 | 100 | 74 |
| Bis(2-ethylhexyl)phthalate | 68 | 67 | 98 | 110 | 101 |
| Butyl benzyl phthalate | 32 | 27 | 50 | 80 | 64 |
| Di-butyl phthalate | 93 | 60 | 81 | 110 | 100 |
| Di-n-octyl phthalate | 41 | 53 | 88 | 100 | 82 |
| Diethyl phthalate | 43 | 70 | 80 | 120 | 89 |

(Continued)

TABLE A.2-5A (Continued)

| Sample I.D. Date Extracted Date Injected | 8602016-06A | | 8602058-05A | | 8602078-05A | | 8602116-05A | | 8602152-06A | |
|--|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
| | 2/03/86 | 2/12/86 | 2/12/86 | 2/26/86 | 2/13/86 | 2/28/86 | 2/20/86 | 3/07/86 | 2/25/86 | 3/11/86 |
| Parameter | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery |
| Dimethyl phthalate | 50 | 68 | 77 | 77 | 60 | 41 | | | | |
| Benzo(a)anthracene | 98 | 77 | 87 | 87 | 110 | 99 | | | | |
| Benzo(a)pyrene | 88 | 79 | 81 | 79 | 95 | 88 | | | | |
| Benzo(b)fluoranthene | 47 | 75 | 83 | 75 | 110 | 79 | | | | |
| Benzo(k)fluoranthene | 53 | 74 | 70 | 74 | 100 | 92 | | | | |
| Chrysene | 87 | 75 | 81 | 75 | 110 | 111 | | | | |
| Acenaphthylene | 62 | 65 | 69 | 65 | 110 | 80 | | | | |
| Anthracene | 106 | 79 | 84 | 79 | 110 | 103 | | | | |
| 4-Bromophenyl phenyl ether | 91 | 74 | 81 | 74 | 120 | 114 | | | | |
| Bis(2-chloroisopropyl)ether | 46 | 61 | 68 | 61 | 130 | 71 | | | | |
| Bis(2-chloroethoxy)methane | 71 | 61 | 62 | 61 | 100 | 66 | | | | |
| Hexachlorobutadiene | 94 | 78 | 56 | 78 | ND | 78 | | | | |
| Hexachlorocyclopentadiene | 1 | ND | 7 | ND | 4 | 30 | | | | |
| Isosporone | 80 | 62 | 62 | 62 | 100 | 72 | | | | |
| Naphthalene | 91 | 61 | 61 | 61 | 100 | 63 | | | | |
| Nitrobenzene | 75 | 61 | 57 | 61 | 110 | 64 | | | | |
| Benzo(ghi)perylene | 31 | 89 | 83 | 89 | 120 | 91 | | | | |
| Fluorene | 51 | 75 | 79 | 75 | 110 | 93 | | | | |
| Phenanthrene | 100 | 75 | 81 | 75 | 100 | 94 | | | | |
| Dibenzo(a,h)anthracene | 26 | 98 | 82 | 98 | 100 | 89 | | | | |
| Indeno(1,2,3-cd)pyrene | 26 | 85 | 88 | 85 | 110 | 84 | | | | |
| Pyrene | 83 | 64 | 89 | 64 | 110 | 108 | | | | |
| 1,2-Diphenylhydrazine | ND | NA | ND | NA | ND | NA | | | | |
| Standard Deviation (n-1) | 27.8 | 34.0 | 24.5 | 34.0 | 37.3 | 62.6 | | | | |
| Mean | 60.3 | 71.7 | 67.3 | 71.7 | 97.0 | 78.2 | | | | |
| Coefficient of Variation | 46.1 | 47.5 | 36.4 | 47.5 | 38.5 | 80.1 | | | | |

(Continued)

TABLE A.2-5A (Continued)

Sample I.D. 8602016-06A 8602058-05A 8602078-05A 8602116-05A 8602152-06A
 Date Extracted 2/03/86 2/12/86 2/13/86 2/20/86 2/25/86
 Date Injected 2/18/86 2/26/86 2/28/86 3/07/86 3/11/86

Parameter % Recovery % Recovery % Recovery % Recovery % Recovery

SURROGATE SPIKE COMPOUNDS

ACID FRACTION

d5-Phenol 56 71 83 70 46
 2-Fluorophenol 226 44 66 70 7
 2,4,6-Tribromophenol 43 87 59 58 11
 d3-Phenol NR NR NR NR NR

BASE FRACTION

d5-Nitrobenzene 39 90 93 138 91
 2-Fluorophenyl 22 72 87 134 100
 d14-Terphenyl 34 60 81 110 54
 d10-Biphenyl NR NR NR NR NR

NR = Not Reported
 ND = Not Detected

TABLE A.2-5B

EPA METHOD 625 : MATRIX SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| Sample I.D. Date Extracted Date Injected | 8602179-05A 2/28/86 3/12/86 | 8603018-05A 3/06/86 3/24/86 | 8604085-04A 4/14/86 4/24/86 | MEAN | STANDARD DEVIATION | % Recovery | SD (n-1) | % Recovery | COEFFICIENT OF VARIATION | CV - % |
|--|-----------------------------------|-----------------------------------|-----------------------------------|------------|-----------------------|------------|------------|------------|--------------------------------|--------|
| Parameter | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | % Recovery | | |
| ACID FRACTION | | | | | | | | | | |
| 2,4,6-Trichlorophenol | 84 | 79 | 115 | 66 | 33.9 | 115 | 33.9 | 66 | 51.6 | |
| 4-Chloro-3-methylphenol | 96 | 110 | 105 | 78 | 27.0 | 105 | 27.0 | 78 | 34.7 | |
| 2-Chlorophenol | 67 | 91 | 99 | 70 | 22.6 | 99 | 22.6 | 70 | 32.6 | |
| 2,4-Dichlorophenol | 77 | 68 | 105 | 65 | 24.8 | 105 | 24.8 | 65 | 37.9 | |
| 2,4-Dimethylphenol | 52 | 30 | 61 | 46 | 12.7 | 61 | 12.7 | 46 | 27.5 | |
| 2-Nitrophenol | 62 | 95 | 105 | 67 | 28.5 | 105 | 28.5 | 67 | 42.3 | |
| 4-Nitrophenol | 69 | 12 | 145 | 65 | 49.7 | 145 | 49.7 | 65 | 76.2 | |
| 2,4-Dinitrophenol | 64 | 27 | 130 | 42 | 43.5 | 130 | 43.5 | 42 | 103.3 | |
| 2-Methyl-4,6-dinitrophenol | 106 | 90 | 147 | 87 | 50.8 | 147 | 50.8 | 87 | 58.1 | |
| Pentachlorophenol | 105 | 93 | 139 | 90 | 85.0 | 139 | 85.0 | 90 | 94.6 | |
| Phenol | 69 | 81 | 80 | 65 | 11.8 | 80 | 11.8 | 65 | 18.0 | |
| BASE FRACTION | | | | | | | | | | |
| Acenaphthene | 109 | 90 | 86 | 83 | 21.6 | 86 | 21.6 | 83 | 26.0 | |
| Benidine | NA | ND | 38 | 24 | 48.8 | 38 | 48.8 | 24 | 206.6 | |
| 1,2,4-Trichlorobenzene | 112 | 80 | 91 | 86 | 18.4 | 91 | 18.4 | 86 | 21.4 | |
| Hexachlorobenzene | 132 | 102 | 95 | 106 | 20.8 | 95 | 20.8 | 106 | 19.7 | |
| Hexachloroethane | 81 | 82 | 94 | 82 | 15.2 | 94 | 15.2 | 82 | 18.6 | |
| Bis(2-chloroethyl)ether | 82 | 76 | 88 | 75 | 18.6 | 88 | 18.6 | 75 | 24.9 | |
| 2-Chloronaphthalene | 110 | 82 | 82 | 84 | 23.2 | 82 | 23.2 | 84 | 27.7 | |
| 1,2-Dichlorobenzene | 89 | 84 | 86 | 80 | 15.8 | 86 | 15.8 | 80 | 19.8 | |
| 1,3-Dichlorobenzene | 81 | 79 | 86 | 77 | 12.4 | 86 | 12.4 | 77 | 16.1 | |
| 1,4-Dichlorobenzene | 80 | 77 | 82 | 73 | 10.7 | 82 | 10.7 | 73 | 14.6 | |
| 3,3-Dichlorobenzidine | 2000 | ND | 131 | 374 | 669.7 | 131 | 669.7 | 374 | 178.9 | |
| 2,4-Dinitrotoluene | 114 | 87 | 111 | 93 | 27.5 | 111 | 27.5 | 93 | 29.4 | |
| 2,6-Dinitrotoluene | 105 | 81 | 110 | 93 | 27.6 | 110 | 27.6 | 93 | 29.6 | |
| Fluoranthene | 109 | 89 | 79 | 92 | 13.5 | 79 | 13.5 | 92 | 14.7 | |
| 4-Chlorophenyl phenyl ether | 117 | 95 | 103 | 92 | 25.9 | 103 | 25.9 | 92 | 28.3 | |
| N-Nitrosodimethylamine | 60 | 1 | 123 | 40 | 47.1 | 123 | 47.1 | 40 | 117.3 | |
| N-Nitrosodiphenylamine | 272 | 1700 | 106 | 345 | 552.9 | 106 | 552.9 | 345 | 160.1 | |
| N-Nitrosodi-n-propylamine | 79 | 65 | 100 | 72 | 21.8 | 100 | 21.8 | 72 | 30.2 | |
| Bis(2-ethylhexyl)phthalate | 97 | 80 | 81 | 88 | 16.0 | 81 | 16.0 | 88 | 18.2 | |
| Butyl benzyl phthalate | 44 | 32 | 47 | 47 | 17.9 | 47 | 17.9 | 47 | 38.1 | |
| Di-butyl phthalate | 100 | 88 | 69 | 88 | 16.9 | 69 | 16.9 | 88 | 19.2 | |
| Di-n-octyl phthalate | 67 | 86 | 78 | 74 | 19.5 | 78 | 19.5 | 74 | 26.3 | |
| Diethyl phthalate | 75 | 92 | 81 | 81 | 21.7 | 81 | 21.7 | 81 | 26.8 | |

(Continued)

TABLE A.2-5B (Continued)

| Sample I.D. Date Extracted Date Injected | 8602179-05A | | 8603018-05A | | 8604085-04A | | MEAN | COEFFICIENT OF VARIATION |
|--|-------------|------------|-------------|------------|-------------|------------|--------|--------------------------------|
| | 2/28/86 | 3/06/86 | 3/06/86 | 4/14/86 | 4/14/86 | 4/24/86 | | |
| Parameter | % Recovery | % Recovery | % Recovery | % Recovery | SD (n-1) | % Recovery | CV - % | |
| Dimethyl phthalate | 31 | 85 | 59 | 18.0 | 59 | 30.6 | | |
| Benzo(a)anthracene | 94 | 74 | 87 | 11.9 | 91 | 13.2 | | |
| Benzo(a)pyrene | 80 | 83 | 98 | 7.1 | 87 | 8.2 | | |
| Benzo(b)fluoranthene | 80 | 198 | 90 | 45.0 | 95 | 47.3 | | |
| Benzo(k)fluoranthene | 85 | 158 | 90 | 31.1 | 90 | 34.5 | | |
| Chrysene | 105 | 83 | 83 | 14.4 | 92 | 15.7 | | |
| Acenaphthylene | 102 | 91 | 73 | 17.8 | 82 | 21.8 | | |
| Anthracene | 116 | 97 | 90 | 13.0 | 98 | 13.2 | | |
| 4-Bromophenyl phenyl ether | 144 | 108 | 108 | 22.6 | 105 | 21.5 | | |
| Bis(2-chloroisopropyl)ether | 74 | 56 | 101 | 27.1 | 76 | 35.8 | | |
| Bis(2-chloroethoxy)methane | 88 | 76 | 86 | 14.0 | 76 | 18.3 | | |
| Hexachlorobutadiene | 124 | 94 | 90 | 36.5 | 77 | 47.6 | | |
| Hexachlorocyclopentadiene | 1 | 10 | 3 | 9.9 | 7 | 141.2 | | |
| Isochlorone | 96 | 83 | 78 | 14.0 | 79 | 17.7 | | |
| Naphthalene | 88 | 81 | 71 | 15.1 | 77 | 19.7 | | |
| Nitrobenzene | 81 | 63 | 86 | 17.6 | 75 | 23.6 | | |
| Benzo(ghi)perylene | 94 | 62 | 106 | 27.4 | 85 | 32.4 | | |
| Fluorene | 107 | 88 | 80 | 18.9 | 85 | 22.1 | | |
| Phenanthrene | 105 | 88 | 77 | 11.5 | 90 | 12.7 | | |
| Dibenzo(a,h)anthracene | 90 | 43 | 108 | 29.2 | 80 | 36.8 | | |
| Indeno(1,2,3-cd)pyrene | 100 | 17 | 107 | 35.8 | 77 | 46.4 | | |
| Pyrene | 100 | 83 | 74 | 16.2 | 89 | 18.3 | | |
| 1,2-Diphenylhydrazine | NA | ND | NA | 0.0 | 0 | ERR | | |
| Standard Deviation (n-1) | 257.8 | 219.9 | 24.7 | | | | | |
| Mean | 124.1 | 104.4 | 91.5 | | | | | |
| Coefficient of Variation | 207.7 | 210.6 | 27.0 | | | | | |

(Continued)

TABLE A.2-5B (Continued)

| Sample I.D. Date Extracted Date Injected | 8602179-05A | | 8603018-05A | | 8604085-04A | | MEAN | COEFFICIENT OF VARIATION |
|--|-------------|------------|-------------|------------|-------------|------------|--------|--------------------------------|
| | 2/28/86 | 3/06/86 | 4/14/86 | 4/24/86 | SD (n-1) | % Recovery | | |
| Parameter | % Recovery | % Recovery | % Recovery | % Recovery | SD (n-1) | % Recovery | CV - % | |
| SURROGATE SPIKE COMPOUNDS | | | | | | | | |
| ACID FRACTION | | | | | | | | |
| d5-Phenol | 65 | 70 | 83 | | 12.6 | 68 | 18.5 | |
| 2-Fluorophenol | 52 | 66 | 83 | | 64.5 | 77 | 84.1 | |
| 2,4,6-Tribromophenol | 110 | 86 | 95 | | 32.1 | 69 | 46.8 | |
| d3-Phenol | NR | NR | NR | | --- | -- | --- | |
| BASE FRACTION | | | | | | | | |
| d5-Nitrobenzene | 106 | 70 | 117 | | 29.8 | 93 | 32.1 | |
| 2-Fluorophenyl | 118 | 68 | 103 | | 34.6 | 88 | 39.4 | |
| d14-Terphenyl | 126 | 60 | 54 | | 31.2 | 72 | 43.1 | |
| d10-Biphenyl | NR | NR | NR | | --- | -- | --- | |

TABLE A.2-6A

EPA METHOD 625: SURROGATE SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| LAB I.D. | QC | INJECTION DATE | ACID FRACTION | | | |
|-------------|----|-------------------|-------------------------|------------------------------|------------------------------------|-------------------------|
| | | | d5-Phenol % Recovery | 2-Fluorophenol % Recovery | 2,4,6-Tribromophenol % Recovery | d3-Phenol % Recovery |
| 8601242-01A | | 20786 | 63 | 48 | 141 | NR |
| 8601242-02A | | 20786 | 32 | 32 | 32 | NR |
| 8601242-03A | | 20786 | 33 | 30 | 31 | NR |
| 8601242-04A | | 20786 | 54 | 82 | 118 | NR |
| 8601242-05A | | 20786 | 135 | 236 | 115 | NR |
| 8601242-06A | | 20786 | 38 | 71 | 33 | NR |
| 8601242-07A | | 21186 | 47 | 45 | 43 | NR |
| 8601242-08A | | 21186 | 111 | 109 | 78 | NR |
| 8601242-09B | D1 | 21186 | 146 | 147 | 123 | NR |
| 8601242-09A | D2 | 21186 | 150 | 79 | 78 | NR |
| 8601242-10A | | 21186 | 49 | 54 | 41 | NR |
| 8602004-01A | | 21186 | 62 | 73 | 50 | NR |
| 8602004-02A | | 21186 | 71 | 69 | 61 | NR |
| 8602004-03A | | 21186 | 62 | 59 | 36 | NR |
| 8602004-04A | | 21286 | 97 | 17 | 12 | NR |
| 8602004-05A | | 21286 | 97 | 94 | 67 | NR |
| 8602004-06A | | 21286 | 85 | 81 | 43 | NR |
| 8602016-01A | | 21486 | 54 | 60 | 39 | NR |
| 8602016-02A | | 21486 | 61 | 64 | 65 | NR |
| 8602016-03A | D1 | 21486 | 70 | 77 | 48 | NR |
| 8602016-04A | | 21486 | 70 | 76 | 60 | NR |
| 8602016-05A | | 21486 | 66 | 73 | 40 | NR |
| 8602016-06B | | 21686 | 76 | 115 | 103 | NR |
| 8602030-01A | D2 | 21686 | 116 | 147 | 139 | NR |
| 8602030-02A | | 21686 | 143 | 126 | 142 | NR |
| 8602030-03A | | 21686 | 81 | 97 | 73 | NR |
| 8602030-04A | | 22186 | 74 | 87 | 52 | NR |
| 8602030-05A | | 21686 | 66 | 81 | 55 | NR |
| 8602038-01A | | 22486 | 26 | 38 | 37 | NR |
| 8602038-02A | D1 | 22486 | 29 | 32 | 31 | NR |
| 8602038-03A | | 22586 | 31 | 33 | 32 | NR |
| 8602038-04A | | 22586 | 33 | 70 | 18 | NR |
| 8602038-05A | | 22586 | 26 | 35 | 35 | NR |
| 8602038-06B | D2 | 22486 | 33 | 72 | 20 | NR |
| 8602044-01A | | 22586 | 54 | 36 | 37 | NR |
| 8602044-02A | | 22586 | 59 | 58 | 63 | NR |
| 8602044-03A | | 22586 | 72 | 24 | 73 | NR |
| 8602044-04A | | 22586 | 5 | 2 | NR | NR |
| 8602044-05A | | 22586 | 98 | 26 | 40 | NR |
| 8602058-01A | | 22686 | 60 | 65 | 67 | NR |

(Continued)

TABLE A.2-6A (Continued)

| LAB I.D. | QC | INJECTION DATE | ACID FRACTION | | | |
|-------------|----|-------------------|-------------------------|------------------------------|------------------------------------|-------------------------|
| | | | d5-Phenol % Recovery | 2-Fluorophenol % Recovery | 2,4,6-Tribromophenol % Recovery | d3-Phenol % Recovery |
| 8602058-02A | | 22686 | 65 | 68 | 43 | NR |
| 8602058-03A | | 22686 | 69 | 74 | 59 | NR |
| 8602058-04A | | 22686 | 62 | 91 | 46 | NR |
| 8602058-05B | | 22686 | 73 | 79 | 70 | NR |
| 8602070-01A | | 22786 | 68 | 190 | 79 | **NA |
| 8602070-02A | | 22786 | 75 | 86 | 79 | **NA |
| 8602070-03A | | 22786 | 88 | 130 | 79 | **NA |
| 8602070-04A | | 22786 | 62 | 76 | 60 | **NA |
| 8602078-01A | D1 | 22786 | 65 | 66 | 77 | NR |
| 8602078-02A | | 22786 | 53 | 72 | 72 | NR |
| 8602078-03A | | 22886 | 67 | 53 | 59 | NR |
| 8602078-04A | | 22886 | 85 | 78 | 81 | NR |
| 8602078-05B | | 22886 | 75 | 58 | 33 | NR |
| 8602091-01A | D2 | 30586 | 72 | 67 | 121 | 2 |
| 8602091-02A | | 30586 | 77 | 77 | 111 | NR |
| 8602109-01A | | 30586 | 66 | 64 | 91 | NR |
| 8602109-02A | | 30586 | 66 | 67 | 104 | NR |
| 8602109-03A | | 30586 | 50 | 54 | 96 | NR |
| 8602116-01A | | 30686 | 54 | 48 | 82 | NR |
| 8602116-02A | | 30686 | 85 | 80 | 135 | NR |
| 8602116-03A | | 30686 | 79 | 79 | 162 | NR |
| 8602116-04A | | 30786 | 52 | 49 | 44 | NR |
| 8602116-05B | | 30786 | 130 | 120 | 156 | NR |
| 8602122-01F | | 30586 | 53 | 56 | 80 | NR |
| 8602122-02A | | 30686 | 67 | 65 | 93 | NR |
| 8602122-03A | | 30686 | 9 | 32 | 113 | NR |
| 8602132-01A | | 30686 | 72 | 63 | 107 | NR |
| 8602132-02A | | 30686 | 78 | 79 | 118 | NR |
| 8602132-03A | | 30686 | 71 | 66 | 114 | NR |
| 8602132-04A | | 30686 | 75 | 70 | 131 | NR |
| 8602132-05A | | 30686 | 78 | 74 | 133 | NR |
| 8602152-03A | | 31086 | 87 | 80 | 148 | NR |
| 8602152-04A | | 31086 | 130 | 45 | 40 | NR |
| 8602152-05A | D1 | 31186 | 79 | 75 | 153 | NR |
| 8602152-06B | D2 | 31186 | 101 | 106 | 143 | NR |
| 8602169-01A | | 31286 | 75 | 73 | 127 | NR |
| 8602169-02A | | 31286 | 64 | 58 | 124 | NR |
| 8602169-03A | | 31286 | 62 | 62 | 112 | NR |
| 8602169-04A | | 31186 | 87 | 78 | 127 | NR |
| 8602179-01A | | 31286 | 62 | 59 | 112 | NR |

(Continued)

TABLE A.2-6A (Continued)

| LAB I.D. | QC | INJECTION DATE | ACID FRACTION | | | |
|--------------------------|----|-------------------|-------------------------|------------------------------|------------------------------------|-------------------------|
| | | | d5-Phenol % Recovery | 2-Fluorophenol % Recovery | 2,4,6-Tribromophenol % Recovery | d3-Phenol % Recovery |
| 8602179-02A | | 31286 | 78 | 74 | 140 | NR |
| 8602179-03A | | 31286 | 68 | 68 | 132 | NR |
| 8602179-04A | | 31286 | 66 | 66 | 122 | NR |
| 8602179-05B | | 31386 | 71 | 72 | 84 | NR |
| 8602198-01A | | 31386 | 62 | 68 | 105 | NR |
| 8602198-02A | | 31386 | 76 | 85 | 130 | NR |
| 8602198-03A | | 31386 | 69 | 75 | 125 | NR |
| 8602198-04A | | 31386 | 61 | 71 | 107 | NR |
| 8602198-05A | | 31386 | 63 | 76 | 112 | NR |
| 8602198-06A | | 31386 | 55 | 62 | 102 | NR |
| 8603018-01A | | 32486 | 59 | 66 | 69 | NR |
| 8603018-02A | | 32486 | 60 | 57 | 70 | NR |
| 8603018-03A | D1 | 32486 | 70 | 75 | 77 | NR |
| 8603018-04A | | 32486 | 62 | 72 | 71 | NR |
| 8603018-05B | D2 | 32486 | 54 | 60 | 61 | NR |
| 8603021-01A | | 32486 | 65 | 70 | 70 | NR |
| 8603021-02A | | 32486 | 63 | 69 | 83 | NR |
| 8603021-03A | | 32486 | 34 | 52 | 49 | NR |
| 8603021-04A | | 32486 | 44 | 53 | 53 | NR |
| 8604070-01A | | 42286 | 75 | 66 | 88 | NR |
| 8604070-02A | | 42286 | 84 | 67 | 69 | NR |
| 8604085-01A | D1 | 42286 | 92 | 32 | 59 | NR |
| 8604085-02A | | 42486 | 82 | 78 | 65 | NR |
| 8604085-03A | D2 | 42486 | 80 | 81 | 78 | NR |
| 8604135-01A | | 42886 | 86 | 82 | 35 | NR |
| 8604135-02A | | 42886 | 63 | 79 | 78 | NR |
| Standard Deviation (n-1) | | | 25.4 | 30.9 | 37.7 | --- |
| Mean | | | 59 | 88 | 78 | --- |
| Coefficient of Variation | | | 42.9 | 35.0 | 48.2 | --- |

NR = Not Reported

NA = Not Analyzed for this compound

TABLE A.2-6B
EPA METHOD 625: SURROGATE SPIKE RECOVERY RESULTS FOR WATER SAMPLES

| LAB I.D. | QC | INJECTION DATE | BASE FRACTION | | | |
|-------------|----|-------------------|-------------------------------|--------------------------------|-----------------------------|----------------------------|
| | | | d5-Nitrobenzene % Recovery | 2-Fluorobiphenyl % Recovery | d14-Terphenyl % Recovery | d10-Biphenyl % Recovery |
| 8601242-01A | | 20786 | 43 | 44 | 56 | NR |
| 8601242-02A | | 20786 | 97 | 74 | 139 | NR |
| 8601242-03A | | 20786 | 88 | 75 | 137 | NR |
| 8601242-04A | | 20786 | 47 | 47 | 64 | NR |
| 8601242-05A | | 20786 | 103 | 79 | 156 | NR |
| 8601242-06A | | 20786 | 110 | 86 | 77 | NR |
| 8601242-07A | | 21186 | 85 | 64 | 37 | NR |
| 8601242-08A | | 21186 | 125 | 66 | 38 | NR |
| 8601242-09B | D1 | 21186 | 58 | 54 | 115 | NR |
| 8601242-09A | D2 | 21186 | 75 | 76 | 43 | NR |
| 8601242-10A | | 21186 | 59 | 78 | 40 | NR |
| 8602004-01A | | 21186 | 64 | 84 | 46 | NR |
| 8602004-02A | | 21186 | 123 | 80 | 44 | NR |
| 8602004-03A | | 21186 | 133 | 100 | 67 | NR |
| 8602004-04A | | 21286 | 110 | 93 | 48 | NR |
| 8602004-05A | | 21286 | 106 | 89 | 60 | NR |
| 8602004-06A | | 21286 | 120 | 76 | 32 | NR |
| 8602016-01A | | 21486 | 38 | 41 | 31 | NR |
| 8602016-02A | D1 | 21486 | 75 | 77 | 80 | NR |
| 8602016-03A | | 21486 | 80 | 91 | 48 | NR |
| 8602016-04A | | 21486 | 80 | 89 | 60 | NR |
| 8602016-05A | | 21486 | 78 | 82 | 62 | NR |
| 8602016-06B | | 21686 | 94 | 75 | 106 | NR |
| 8602030-01A | D2 | 21686 | 47 | 53 | 31 | NR |
| 8602030-02A | | 21686 | 73 | 50 | 28 | NR |
| 8602030-03A | | 21686 | 68 | 44 | 32 | NR |
| 8602030-04A | | 21686 | 42 | 36 | 38 | NR |
| 8602030-05A | | 21686 | 53 | 41 | 37 | NR |
| 8602038-01A | D1 | 22486 | 72 | 41 | 32 | NR |
| 8602038-02A | | 22486 | 50 | 39 | 27 | NR |
| 8602038-03A | | 22586 | 65 | 46 | 36 | NR |
| 8602038-04A | | 22586 | 56 | 47 | 44 | NR |
| 8602038-05A | | 22586 | 61 | 40 | 39 | NR |
| 8602038-06B | D2 | 22486 | 51 | 38 | 31 | NR |
| 8602044-01A | | 22486 | 76 | 62 | 66 | NR |
| 8602044-02A | | 22586 | 114 | 76 | 73 | NR |
| 8602044-03A | | 22586 | 110 | 80 | 44 | NR |
| 8602044-04A | | 22586 | 116 | 84 | 66 | NR |
| 8602044-05A | | 22586 | 99 | 84 | 56 | NR |
| 8602058-01A | | 22686 | 83 | 71 | 46 | NR |

(Continued)

TABLE A.2-6B (Continued)

| LAB I.D. | QC | INJECTION DATE | BASE FRACTION | | | d10-Biphenyl % Recovery |
|--------------------------|----|-------------------|-------------------------------|--------------------------------|-----------------------------|----------------------------|
| | | | d5-Nitrobenzene % Recovery | 2-Fluorobiphenyl % Recovery | d14-Terphenyl % Recovery | |
| 8602179-02A | | 31286 | 92 | 112 | 170 | NR |
| 8602179-03A | | 31286 | 86 | 96 | 153 | NR |
| 8602179-04A | | 31286 | 80 | 94 | 144 | NR |
| 8602179-05B | | 31386 | 82 | 86 | 118 | NR |
| 8602198-01A | | 31386 | 38 | 36 | 15 | NR |
| 8602198-02A | | 31386 | 36 | 36 | 19 | NR |
| 8602198-03A | | 31386 | 44 | 49 | 21 | NR |
| 8602198-04A | | 31386 | 29 | 35 | 20 | NR |
| 8602198-05A | | 31386 | 62 | 66 | 38 | NR |
| 8602198-06A | | 31386 | 70 | 78 | 38 | NR |
| 8603018-01A | | 32486 | 48 | 56 | 50 | NR |
| 8603018-02A | | 32486 | 43 | 57 | 75 | NR |
| 8603018-03A | D1 | 32486 | 43 | 54 | 67 | NR |
| 8603018-04A | | 32486 | 45 | 52 | 70 | NR |
| 8603018-05B | D2 | 32486 | 34 | 37 | 74 | NR |
| 8603021-01A | | 32486 | 39 | 36 | 53 | NR |
| 8603021-02A | | 32486 | 57 | 56 | 71 | NR |
| 8603021-03A | | 32486 | 14 | 32 | 78 | NR |
| 8603021-04A | | 32486 | 18 | 53 | 64 | NR |
| 8604070-01A | | 42386 | 89 | 89 | 110 | NR |
| 8604070-02A | | 42286 | 110 | 110 | 120 | NR |
| 8604085-01A | D1 | 42286 | 97 | 84 | 44 | NR |
| 8604085-02A | | 42486 | 77 | 78 | 58 | NR |
| 8604085-03A | D2 | 42486 | 107 | 94 | 61 | NR |
| 8604135-01A | | 42886 | 86 | 82 | 35 | NR |
| 8604135-02A | | 42886 | 63 | 79 | 37 | NR |
| Standard Deviation (n-1) | | | 28.8 | 25.5 | 41.0 | --- |
| Mean | | | 81 | 68 | 105 | --- |
| Coefficient of Variation | | | 35.4 | 37.8 | 39.1 | --- |

NR = Not Reported

NA = Not Analyzed for this compound

a Co-eluting compound interfered with qualitative identification. No value reported.

TABLE A.2-6B (Continued)

| LAB I.D. | QC | INJECTION DATE | BASE FRACTION | | | |
|-------------|----|-------------------|-------------------------------|--------------------------------|-----------------------------|----------------------------|
| | | | d5-Nitrobenzene % Recovery | 2-Fluorobiphenyl % Recovery | d14-Terphenyl % Recovery | d10-Biphenyl % Recovery |
| 8602058-02A | | 22686 | 74 | 64 | 74 | NR |
| 8602058-03A | | 22686 | 94 | 80 | 51 | NR |
| 8602058-04A | | 22786 | 60 | 56 | 64 | NR |
| 8602058-05B | | 22686 | 98 | 80 | 46 | NR |
| 8602070-01A | | 22786 | 82 | 68 | 120 | **NA |
| 8602070-02A | | 22786 | 110 | 93 | 120 | NR |
| 8602070-03A | | 22786 | 120 | 88 | 190 | NR |
| 8602070-04A | | 22786 | 66 | 64 | 150 | NR |
| 8602078-01A | D1 | 22786 | 66 | 65 | 77 | NR |
| 8602078-02A | | 22786 | 74 | 65 | 46 | NR |
| 8602078-03A | | 22886 | 140 | 120 | 102 | NR |
| 8602078-04A | | 22886 | 95 | 81 | 168 | NR |
| 8602078-05B | D2 | 22886 | 91 | 84 | 184 | NR |
| 8602091-01A | | 30586 | 100 | 86 | 40 | NR |
| 8602091-02A | | 30586 | 100 | 88 | 51 | NR |
| 8602109-01A | | 30586 | 77 | 74 | 92 | NR |
| 8602109-02A | | 30586 | 98 | 90 | 72 | NR |
| 8602109-03A | | 30586 | 78 | 75 | 66 | NR |
| 8602116-01A | | 30686 | 114 | 131 | 104 | NR |
| 8602116-02A | | 30686 | 115 | 132 | 140 | NR |
| 8602116-03A | | 30686 | 55 | 63 | 69 | NR |
| 8602116-04A | | 30786 | 110 | 122 | 132 | NR |
| 8602116-05B | | 30786 | 148 | 143 | 162 | NR |
| 8602122-01A | | 30586 | 50 | 52 | 78 | NR |
| 8602122-02A | | 30686 | 72 | 70 | 86 | NR |
| 8602122-03A | | 30686 | 116 | 90 | 60 | NR |
| 8602132-01A | | 30686 | 116 | 126 | 54 | NR |
| 8602132-02A | | 30686 | 98 | 92 | 50 | NR |
| 8602132-03A | | 30686 | 98 | 108 | 76 | NR |
| 8602132-04A | | 30686 | 92 | 106 | 52 | NR |
| 8602132-05A | | 30686 | 102 | 128 | 108 | NR |
| 8602152-03A | | 31086 | 75 | 88 | 55 | NR |
| 8602152-04A | | 31086 | a | 130 | 100 | NR |
| 8602152-05A | D1 | 31186 | 120 | 126 | 48 | NR |
| 8602152-06B | D2 | 31186 | 89 | 81 | 62 | NR |
| 8602169-01A | | 31286 | 94 | 100 | 106 | NR |
| 8602169-02A | | 31286 | 72 | 78 | 102 | NR |
| 8602169-03A | | 31286 | 82 | 90 | 110 | NR |
| 8602169-04A | | 31286 | 106 | 116 | 122 | NR |
| 8602179-01A | | 31286 | 72 | 84 | 138 | NR |

(Continued)

TABLE A.2-7
QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis | | SAM | | QC Check | Matrix Spike | | Duplicate | | Reagent |
|-----------|----------|-----------|----------|-----|----------|--------------|------------|-----------|--------|---------|
| | Date | Workorder | Fraction | SAM | | % Recovery | % Recovery | Analyses | Blanks | |
| | | | | | | | | | | (ug/ml) |
| Ag | 04-Mar | fn-5 | QC | | 102 | | | | | |
| Ag | 04-Mar | fn-5 | QC | | 100 | | | | | |
| Ag | 04-Mar | fn-5 | QC | | 100 | | | | | |
| Ag | 04-Mar | fn-5 | QC | | 102 | | | | | |
| Ag | 31-Mar | fn-1 | QC | | 98 | | | | | |
| Ag | 31-Mar | fn-1 | QC | | 100 | | | | | |
| Ag | 31-Mar | fn-3 | QC | | 99 | | | | | |
| Ag | 31-Mar | fn-1 | QC | | 101 | | | | | |
| Ag | 31-Mar | fn-3 | QC | | 99 | | | | | |
| Ag | 31-Mar | fn-3 | QC | | 99 | | | | | |
| Ag | 31-Mar | fn-1 | QC | | 100 | | | | | |
| Ag | 31-Mar | fn-3 | QC | | 99 | | | | | |
| Ag | 23-Apr | 8602113 | QC | | 77 | | | | | |
| Ag | 23-Apr | 8602113 | QC | | 77 | | | | | |
| Ag | 04-Mar | 8601240 | -02A | | | 99 a | | | | |
| Ag | 27-Feb | 8602019 | -04C | | | 98 a | | | | |
| Ag | 04-Mar | 8602087 | -05A | | | 98 a | | | | |
| Ag | 04-Mar | 8602067 | -02E | | | 98 a | | | | |
| Ag | 04-Mar | 8602041 | -02E | | | 98 a | | | | |
| Ag | 31-Mar | 8602047 | -03 | | | 96 a | | | | |
| Ag | 31-Mar | 8602159 | -05E | | | 96 a | | | | |
| Ag | 31-Mar | 8602120 | -03E | | | 95 | | | | |
| Ag | 31-Mar | 8602197 | -06 | | | 95 a | | | | |
| Ag | 31-Mar | 8602197 | -05 | | | 95 a | | | | |
| Ag | 31-Mar | 8602139 | -08A | | | 95 a | | | | |
| Ag | 31-Mar | 8603004 | -10 | | | 95 a | | | | |
| Ag | 31-Mar | 8602197 | -06 | | | 91 p | | | | |
| Ag | 23-Apr | 8602113 | -03 | | | 84 p | | | | |
| Ag | 04-Mar | 8602079 | -03 | | | 80 p | | | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check X Recovery | Matrix Spike X Recovery | Duplicate Analyses | Reagent Blanks |
|-----------|---------------|---------------|--------------|------------------------|----------------------------|-----------------------|-------------------|
| As | 31-Mar | 8602047 | -02 | | 80 | | |
| As | 04-Mar | 8601240 | -02A | | 79 | P | |
| As | 04-Mar | 8602031 | -03G | | 77 | P | |
| As | 27-Feb | 8602001 | -06d | | 76 | P | |
| A | 23-Apr | 8602113 | -04 | | 76 | a | |
| As | 31-Mar | 8602100 | -03A | | 73 | | |
| As | 31-Mar | 8602159 | -02E | | 70 | P | |
| As | 27-Feb | 8602001 | -05D | | | 0.0 | P |
| As | 27-Feb | 8602001 | -01D | | | NC | a |
| As | 27-Feb | 8602019 | -03G | | | NC | |
| As | 04-Mar | 8602087 | -04A | | | NC | a |
| As | 04-Mar | 8602087 | -04A | | | NC | P |
| As | 04-Mar | 8602041 | -01E | | | NC | |
| As | 31-Mar | 8602197 | -05 | | | 18.2 | P |
| As | 31-Mar | 8602047 | -01 | | | NC | P |
| As | 31-Mar | 8602120 | -01E | | | NC | P |
| As | 31-Mar | 8602159 | -01E | | | NC | a |
| As | 31-Mar | 8602120 | -04E | | | 0.0 | a |
| As | 31-Mar | 8603004 | -03 | | | NC | |
| As | 31-Mar | 8602100 | -02A | | | NC | a |
| As | 31-Mar | 8602047 | -04 | | | 0.0 | a |
| As | 31-Mar | 8602159 | -01E | | | NC | P |
| As | 31-Mar | 8602100 | -02A | | | NC | P |
| As | 23-Apr | 8602113 | -08 | | | *75 | |
| As | 04-Mar | fn-5 | Blank | | | | <.002 |
| As | 04-Mar | fn-6 | Blank | | | | <.002 |
| As | 04-Mar | 8601240 | Blank | | | | <.002 |
| As | 31-Mar | fn-2 | Blank | | | | <.002 |
| As | 31-Mar | fn-4 | Blank | | | | <.002 |

TABLE A.2-7 (Continued)
QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | Matrix Spike | Duplicate Analyses | Reagent Blanks |
|-----------|---------------|---------------|--------------|------------|--------------|--------------------|----------------|
| | | | | Z Recovery | Z Recovery | Z RPD | (ug/ml) |
| Ag | 31-Mar | 8602047 | Blank | | | | <.002 |
| Ag | 31-Mar | 8602100 | Blank | | | | <.002 |
| Ag | 31-Mar | 8602159 | Blank | | | | 0.01 |
| Ag | 31-Mar | 8603004 | Blank | | | | <.002 |
| Ag | 23-Apr | 8602113 | Blank | | | | <.002 |
| Mean | | | | 97 | 88 | | |
| RSD (%) | | | | 8.7 | 11.3 | | |
| As | 08-Feb | 8601240 | QC | 100 | | | |
| As | 08-Feb | 8601240 | QC | 103 | | | |
| As | 08-Feb | 8601240 | QC | 103 | | | |
| As | 15-Feb | 8602067 | QC | 105 | | | |
| As | 15-Feb | 8602067 | QC | 107 | | | |
| As | 19-Feb | 8602041 | QC | 88 | | | |
| As | 19-Feb | 8602019 | QC | 93 | | | |
| As | 19-Feb | 8602041 | QC | 93 | | | |
| As | 19-Feb | 8602047 | QC | 90 | | | |
| As | 19-Feb | 8602019 | QC | 98 | | | |
| As | 19-Feb | 8602047 | QC | 88 | | | |
| As | 19-Feb | 8602047 | QC | 98 | | | |
| As | 19-Feb | 8602041 | QC | 98 | | | |
| As | 19-Feb | 8602019 | QC | 100 | | | |
| As | 21-Feb | 8602079 | QC | 105 | | | |
| As | 21-Feb | 8602079 | QC | 105 | | | |
| As | 21-Feb | 8602079 | QC | 105 | | | |
| As | 24-Feb | 8602100 | QC | 93 | | | |
| As | 24-Feb | 8602113 | QC | 93 | | | |
| As | 24-Feb | 8602113 | QC | 93 | | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | Matrix Spike | Duplicate Analyses | Reagent Blanks |
|-----------|---------------|---------------|--------------|------------|--------------|--------------------|----------------|
| | | | | X Recovery | X Recovery | X RPD | (ug/ml) |
| As | 24-Feb | 8602113 | QC | 95 | | | |
| As | 24-Feb | 8602100 | QC | 90 | | | |
| As | 24-Feb | 8602100 | QC | 90 | | | |
| As | 24-Feb | 8602113 | QC | 90 | | | |
| As | 10-Mar | 8602139 | QC | 100 | | | |
| As | 10-Mar | 8602139 | QC | 115 | | | |
| As | 10-Mar | 8602120 | QC | 110 | | | |
| As | 10-Mar | 8602139 | QC | 110 | | | |
| As | 10-Mar | 8602120 | QC | 95 | | | |
| As | 10-Mar | 8602139 | QC | 95 | | | |
| As | 12-Mar | 8602176 | QC | 110 | | | |
| As | 12-Mar | 8602176 | QC | 100 | | | |
| As | 12-Mar | 8602176 | QC | 93 | | | |
| As | 13-Mar | 8603004 | QC | 93 | | | |
| As | 13-Mar | 8603004 | QC | 103 | | | |
| As | 17-Mar | 8602159 | QC | 105 | | | |
| As | 17-Mar | 8602159 | QC | 104 | | | |
| As | 17-Mar | 8602159 | QC | 105 | | | |
| As | 21-Feb | 8602079 | -01A | | | | 113 a |
| As | 19-Feb | 8602001 | -01D | | | | 108 a |
| As | 12-Mar | 8602176 | -03C | | | | 108 a |
| As | 10-Mar | 8602139 | -01A | | | | 104 a |
| As | 10-Mar | 8602120 | -01E | | | | 104 a |
| As | 08-Feb | 8601240 | -01A | | | | 100 a |
| As | 15-Feb | 8602060 | -05C | | | | 100 a |
| As | 24-Feb | 8602087 | -05A | | | | 100 a |
| As | 24-Feb | 8602113 | -01C | | | | 100 a |
| As | 13-Mar | 8603004 | -04 | | | | 100 P |
| As | 19-Feb | 8602019 | -03C | | | | 96 a |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | | Matrix Spike | Duplicate | | Reagent |
|-----------|---------------|---------------|--------------|------------|------------|--------------|-----------|---------|---------|
| | | | | % Recovery | % Recovery | | Analyses | Blanks | |
| | | | | | | % Recovery | % RPD | (ug/ml) | |
| As | 19-Feb | 8602031 | -02G | | | 96 a | | | |
| As | 21-Feb | 8602100 | -04A | | | 96 a | | | |
| As | 17-Mar | 8602197 | -02 | | | 96 a | | | |
| As | 19-Feb | 8602019 | -04G | | | 95 p | | | |
| As | 21-Feb | 8602079 | -02A | | | 95 p | | | |
| As | 19-Feb | 8602041 | -01E | | | 92 a | | | |
| As | 19-Feb | 8602047 | -01E | | | 92 a | | | |
| As | 24-Feb | 8602113 | -02G | | | 90 p | | | |
| As | 15-Feb | 8602067 | -03E | | | 88 a | | | |
| As | 13-Mar | 8603004 | -06 | | | 88 a, d | | | |
| As | 15-Feb | 8602060 | -02C | | | 85 p | | | |
| As | 19-Feb | 8602001 | -06D | | | 85 p | | | |
| As | 20-Feb | 8602100 | -04A | | | 85 p | | | |
| As | 10-Mar | 8602139 | -01A | | | 85 p | | | |
| As | 17-Mar | 8602197 | -02 | | | 85 p | | | |
| As | 13-Mar | 8603004 | -06 | | | 83 a, b | | | |
| As | 19-Feb | 8602047 | -05E | | | 70 a | | | |
| As | 15-Feb | 8602060 | -01C | | | | | | NC p |
| As | 19-Feb | 8602047 | -04E | | | | | | 8.0 p |
| As | 19-Feb | 8602047 | -01E | | | | | | NC a |
| As | 21-Feb | 8602079 | -01A | | | | | | 0.0 |
| As | 21-Feb | 8602079 | -01A | | | | | | 9.5 |
| As | 24-Feb | 8602100 | -02A | | | | | | NC |
| As | 24-Feb | 8602113 | -01C | | | | | | NC a |
| As | 24-Feb | 8602087 | -04A | | | | | | 0.0 a |
| As | 24-Feb | 8602113 | -01C | | | | | | NC p |
| As | 24-Feb | 8602100 | -03A | | | | | | 15 |
| As | 10-Mar | 8602139 | -02A | | | | | | NC p |
| As | 10-Mar | 8602139 | -01A | | | | | | 6.9 p |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | Matrix Spike | Duplicate Analyses | Reagent Blanks |
|-----------|---------------|---------------|--------------|------------|--------------|--------------------|----------------|
| | | | | % Recovery | % Recovery | % RPD | (ug/ml) |
| As | 10-Mar | 8602120 | -01E | | | NC a | |
| As | 17-Mar | 8602197 | -01 | | | 54 p | |
| As | 08-Feb | 8601240 | Blank | | | | <.005 |
| As | 24-Feb | 8602100 | Blank | | | | <.002 |
| As | 10-Mar | 8602139 | Blank | | | | <.003 |
| As | 24-Feb | 8602113 | Blank | | | | <.002 |
| As | 12-Mar | 8602176 | Blank | | | | <.003 |
| As | 15-Feb | 8602067 | Blank | | | | <.002 |
| As | 10-Mar | 8602120 | Blank | | | | <.003 |
| As | 19-Feb | 8602047 | Blank | | | | <.005 |
| As | 17-Mar | 8602197 | Blank | | | | <.002 |
| As | 17-Mar | 8602159 | Blank | | | | <.002 |
| As | 17-Mar | 8602159 | Blank | | | | <.002 |
| As | 17-Mar | 8602159 | Blank | | | | <.002 |
| As | 19-Feb | 8602041 | Blank | | | | <.005 |
| Mean | | | | 99 | | 94 | |
| RSD (%) | | | | 7.1 | | 9.9 | |
| Ba | 04-Mar | fn-5 | QC | 101 | | | |
| Ba | 04-Mar | fn-5 | QC | 101 | | | |
| Ba | 04-Mar | fn-5 | QC | 101 | | | |
| Ba | 04-Mar | fn-5 | QC | 101 | | | |
| Ba | 31-Mar | fn-3 | QC | 99 | | | |
| Ba | 31-Mar | fn-3 | QC | 98 | | | |
| Ba | 31-Mar | fn-1 | QC | 99 | | | |
| Ba | 31-Mar | fn-1 | QC | 99 | | | |
| Ba | 31-Mar | fn-1 | QC | 98 | | | |
| Ba | 31-Mar | fn-1 | QC | 99 | | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | Matrix Spike | Duplicate | | Reagent Blanks |
|-----------|---------------|---------------|--------------|----------|--------------|-----------|-----|----------------|
| | | | | | | Recovery | RPD | |
| Ba | 31-Mar | fn-3 | QC | 99 | | | | |
| Ba | 31-Mar | fn-3 | QC | 99 | | | | |
| Ba | 23-Apr | 8602113 | QC | 104 | | | | |
| Ba | 23-Apr | 8602113 | QC | 106 | | | | |
| Ba | 04-Mar | 8602067 | -02E | | | 99 a | | |
| Ba | 04-Mar | 8601240 | -02A | | | 98 a | | |
| Ba | 04-Mar | 8602041 | -02E | | | 98 a | | |
| Ba | 04-Mar | 8602087 | -05A | | | 97 a | | |
| Ba | 23-Apr | 8602113 | -04 | | | 97 a | | |
| Ba | 31-Mar | 8602197 | -06 | | | 95 a | | |
| Ba | 31-Mar | 8602197 | -05 | | | 94 a | | |
| Ba | 31-Mar | 8602139 | -08A | | | 94 a | | |
| Ba | 31-Mar | 8603004 | -10 | | | 94 a | | |
| Ba | 31-Mar | 8602120 | -03E | | | 93 | | |
| Ba | 31-Mar | 8602047 | -03 | | | 93 a | | |
| Ba | 31-Mar | 8602159 | -05E | | | 93 a | | |
| Ba | 23-Apr | 8602113 | -03 | | | 92 p | | |
| Ba | 04-Mar | 8602079 | -03 | | | 89 p | | |
| Ba | 04-Mar | 8602031 | -03C | | | 87 p | | |
| Ba | 27-Feb | 8602019 | -04G | | | 86 a | | |
| Ba | 04-Mar | 8601240 | -02A | | | 86 p | | |
| Ba | 31-Mar | 8602197 | -06 | | | 86 p | | |
| Ba | 27-Feb | 8602001 | -06d | | | 84 p | | |
| Ba | 31-Mar | 8602047 | -02 | | | 84 | | |
| Ba | 31-Mar | 8602159 | -02E | | | 83 p | | |
| Ba | 31-Mar | 8602100 | -03A | | | 79 | | |
| Ba | 27-Feb | 8602019 | -03C | | | | | 0.0 |
| Ba | 27-Feb | 8602001 | -01D | | | | | 9.5 a |
| Ba | 27-Feb | 8602001 | -05D | | | | | 0.0 p |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | Matrix Spike | Duplicate Analyses | Reagent Blanks |
|-----------|---------------|---------------|--------------|------------|--------------|--------------------|----------------|
| | | | | % Recovery | % Recovery | X RPD | (ug/ml) |
| Ba | 04-Mar | 8602087 | -04A | | | 0.0 P | |
| Ba | 04-Mar | 8602041 | -01E | | | 1.3 | |
| Ba | 04-Mar | 8602087 | -04A | | | 0.0 a | |
| Ba | 31-Mar | 8602047 | -04 | | | 0.0 a | |
| Ba | 31-Mar | 8602047 | -01 | | | 1.0 P | |
| Ba | 31-Mar | 8602197 | -05 | | | 12 P | |
| Ba | 31-Mar | 8603004 | -03 | | | 0.91 a | |
| Ba | 31-Mar | 8602100 | -02A | | | 2.9 a | |
| Ba | 31-Mar | 8602120 | -01E | | | 53 P | |
| Ba | 31-Mar | 8602100 | -02A | | | 0.0 P | |
| Ba | 31-Mar | 8602120 | -04E | | | 0.0 a | |
| Ba | 31-Mar | 8602159 | -01E | | | 2.7 P | |
| Ba | 31-Mar | 8602159 | -01E | | | 1.4 a | |
| Ba | 23-Apr | 8602113 | -08 | | | 3.0 | |
| Ba | 31-Mar | 8602100 | Blank | | | | *.003 |
| Ba | 31-Mar | 8602159 | Blank | | | | *.004 |
| Ba | 31-Mar | fn-4 | Blank | | | | *.004 |
| Ba | 31-Mar | 8603004 | Blank | | | | *.002 |
| Ba | 04-Mar | 8601240 | Blank | | | | <.001 |
| Ba | 04-Mar | fn-6 | Blank | | | | *.005 |
| Ba | 04-Mar | fn-5 | Blank | | | | *.005 |
| Ba | 31-Mar | 8602047 | Blank | | | | <.001 |
| Ba | 23-Apr | 8602113 | Blank | | | | .002 |
| Ba | 31-Mar | fn-2 | Blank | | | | *.002 |
| Mean | | | | 100 | 91 | | |
| RSD (%) | | | | 2.3 | 6.3 | | |
| Cd | 04-Mar | fn-5 | QC | 103 | | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | Matrix Spike | Duplicate Analyses | Reagent Blanks |
|-----------|---------------|---------------|--------------|------------|--------------|--------------------|----------------|
| | | | | X Recovery | X Recovery | X RPD | (ug/ml) |
| Cd | 04-Mar | fn-5 | QC | 104 | | | |
| Cd | 04-Mar | fn-5 | QC | 104 | | | |
| Cd | 04-Mar | fn-5 | QC | 105 | | | |
| Cd | 31-Mar | fn-1 | QC | 102 | | | |
| Cd | 31-Mar | fn-3 | QC | 101 | | | |
| Cd | 31-Mar | fn-3 | QC | 100 | | | |
| Cd | 31-Mar | fn-1 | QC | 98 | | | |
| Cd | 31-Mar | fn-1 | QC | 100 | | | |
| Cd | 31-Mar | fn-3 | QC | 98 | | | |
| Cd | 31-Mar | fn-1 | QC | 99 | | | |
| Cd | 31-Mar | fn-3 | QC | 103 | | | |
| Cd | 23-Apr | 8602113 | QC | 104 | | | |
| Cd | 23-Apr | 8602113 | QC | 104 | | | |
| Cd | 04-Mar | 8601240 | -02A | | 98 a | | |
| Cd | 04-Mar | 8602041 | -02E | | 94 a | | |
| Cd | 04-Mar | 8602087 | -05A | | 94 a | | |
| Cd | 04-Mar | 8602067 | -02E | | 94 a | | |
| Cd | 31-Mar | 8602139 | -08A | | 92 a | | |
| Cd | 27-Feb | 8602011 | -04G | | 90 a | | |
| Cd | 23-Apr | 8602113 | -04 | | 89 a | | |
| Cd | 31-Mar | 8602120 | -03E | | 88 | | |
| Cd | 31-Mar | 8602197 | -06 | | 88 a | | |
| Cd | 31-Mar | 8602159 | -05E | | 88 a | | |
| Cd | 31-Mar | 8602047 | -03 | | 87 a | | |
| Cd | 31-Mar | 8602197 | -05 | | 87 a | | |
| Cd | 31-Mar | 8603004 | -10 | | 87 a | | |
| Cd | 27-Feb | 8602001 | -06d | | 74 p | | |
| Cd | 04-Mar | 8601240 | -02A | | 74 p | | |
| Cd | 04-Mar | 8602079 | -03 | | 72 p | | |

xxxxx

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis | | SAM | | QC Check | | Matrix Spike | | Duplicate | | Reagent | |
|-----------|----------|-----------|----------|-----|------------|------------|--------------|------------|-----------|-------|---------|---------|
| | Date | Workorder | Fraction | SAM | % Recovery | % Recovery | % Recovery | % Recovery | % RPD | % RPD | Blanks | (ug/ml) |
| Cd | 04-Mar | 8602031 | -03C | | | | | 72 | P | | | |
| Cd | 31-Mar | 8602159 | -02E | | | | | 72 | P | | | |
| Cd | 31-Mar | 8602197 | -06 | | | | | 70 | P | | | |
| Cd | 31-Mar | 8602047 | -02 | | | | | 66 | | | | |
| Cd | 23-Apr | 8602113 | -03 | | | | | 60 | P | | | |
| Cd | 31-Mar | 8602100 | -03A | | | | | 56 | | | | |
| Cd | 27-Feb | 8602019 | -03C | | | | | | | NC | | |
| Cd | 27-Feb | 8602001 | -01D | | | | | | | NC a | | |
| Cd | 27-Feb | 8602001 | -05D | | | | | | | NC p | | |
| Cd | 04-Mar | 8602087 | -04A | | | | | | | NC a | | |
| Cd | 04-Mar | 8602087 | -04A | | | | | | | NC p | | |
| Cd | 04-Mar | 8602041 | -01E | | | | | | | NC | | |
| Cd | 31-Mar | 8602159 | -01E | | | | | | | NC a | | |
| Cd | 31-Mar | 8603004 | -03 | | | | | | | NC | | |
| Cd | 31-Mar | 8602197 | -05 | | | | | | | NC p | | |
| Cd | 31-Mar | 8602120 | -01E | | | | | | | NC p | | |
| Cd | 31-Mar | 8602120 | -04E | | | | | | | NC a | | |
| Cd | 31-Mar | 8602047 | -01 | | | | | | | NC p | | |
| Cd | 31-Mar | 8602100 | -02A | | | | | | | NC p | | |
| Cd | 31-Mar | 8602047 | -04 | | | | | | | NC a | | |
| Cd | 31-Mar | 8602159 | -01E | | | | | | | NC p | | |
| Cd | 31-Mar | 8602100 | -02A | | | | | | | NC a | | |
| Cd | 23-Apr | 8602113 | -08 | | | | | | | NC | | <.002 |
| Cd | 31-Mar | 8602047 | Blank | | | | | | | | | <.002 |
| Cd | 31-Mar | 8602159 | Blank | | | | | | | | | <.002 |
| Cd | 23-Apr | 8602113 | Blank | | | | | | | | | <.002 |
| Cd | 31-Mar | 8602100 | Blank | | | | | | | | | <.002 |
| Cd | 31-Mar | fn-4 | Blank | | | | | | | | | <.002 |
| Cd | 04-Mar | fn-5 | Blank | | | | | | | | | <.002 |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis | | SAM | | QC Check | | Matrix Spike | | Duplicate | | Reagent | |
|-----------|----------|-----------|----------|--|------------|--|--------------|--|-----------|--|---------|--|
| | Date | Workorder | Fraction | | % Recovery | | % Recovery | | % RPD | | (ug/ml) | |
| Cd | 31-Mar | fn-2 | Blank | | | | | | | | <.002 | |
| Cd | 04-Mar | 8601240 | Blank | | | | | | | | <.002 | |
| Cd | 04-Mar | fn-6 | Blank | | | | | | | | <.002 | |
| Cd | 31-Mar | 8603004 | Blank | | | | | | | | <.002 | |
| Mean | | | | | 102 | | 81 | | | | | |
| RSD (%) | | | | | 2.4 | | 14.8 | | | | | |
| Cr | 04-Mar | fn-5 | QC | | 102 | | | | | | | |
| Cr | 04-Mar | fn-5 | QC | | 101 | | | | | | | |
| Cr | 04-Mar | fn-5 | QC | | 102 | | | | | | | |
| Cr | 04-Mar | fn-5 | QC | | 101 | | | | | | | |
| Cr | 31-Mar | fn-1 | QC | | 98 | | | | | | | |
| Cr | 31-Mar | fn-3 | QC | | 99 | | | | | | | |
| Cr | 31-Mar | fn-1 | QC | | 99 | | | | | | | |
| Cr | 31-Mar | fn-3 | QC | | 102 | | | | | | | |
| Cr | 31-Mar | fn-1 | QC | | 99 | | | | | | | |
| Cr | 31-Mar | fn-1 | QC | | 101 | | | | | | | |
| Cr | 31-Mar | fn-3 | QC | | 101 | | | | | | | |
| Cr | 31-Mar | fn-3 | QC | | 98 | | | | | | | |
| Cr | 23-Apr | 8602113 | QC | | 105 | | | | | | | |
| Cr | 23-Apr | 8602113 | QC | | 105 | | | | | | | |
| Cr | 04-Mar | 8601240 | -02A | | | | 96 a | | | | | |
| Cr | 04-Mar | 8602041 | -02E | | | | 96 a | | | | | |
| Cr | 04-Mar | 8602087 | -05A | | | | 96 a | | | | | |
| Cr | 04-Mar | 866.767 | -02E | | | | 94 a | | | | | |
| Cr | 31-Mar | 8602139 | -08A | | | | 94 a | | | | | |
| Cr | 27-Feb | 8602019 | -04G | | | | 93 a | | | | | |
| Cr | 31-Mar | 8602120 | -03E | | | | 92 | | | | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check % Recovery | Matrix Spike % Recovery | Duplicate Analyses % RPD | Reagent Blanks (ug/ml) |
|-----------|---------------|---------------|--------------|---------------------|-------------------------|--------------------------|------------------------|
| Cr | 31-Mar | 8602047 | -03 | | 92 a | | |
| Cr | 31-Mar | 8603004 | -10 | | 92 a | | |
| Cr | 31-Mar | 8602197 | -06 | | 91 a | | |
| Cr | 31-Mar | 8602197 | -05 | | 91 a | | |
| Cr | 31-Mar | 8602159 | -05E | | 90 a | | |
| Ct | 23-Apr | 8602113 | -04 | | 89 a | | |
| Cr | 04-Mar | 8602031 | -03G | | 85 p | | |
| Cr | 04-Mar | 8602079 | -03 | | 82 p | | |
| Cr | 04-Mar | 8601240 | -02A | | 81 p | | |
| Cr | 31-Mar | 8602047 | -02 | | 81 | | |
| Cr | 27-Feb | 8602001 | -06d | | 80 p | | |
| Cr | 31-Mar | 8602197 | -06 | | 79 p | | |
| Cr | 31-Mar | 8602159 | -02E | | 78 p | | |
| Cr | 31-Mar | 8602100 | -03A | | 76 | | |
| Cr | 23-Apr | 8602113 | -03 | | 70 p | | |
| Cr | 27-Feb | 8602019 | -03G | | | NC | |
| Cr | 27-Feb | 8602001 | -01D | | | 0.0 a | |
| Cr | 27-Feb | 8602001 | -05D | | | 0.0 p | |
| Cr | 04-Mar | 8602041 | -01E | | | NC | |
| Cr | 04-Mar | 8602087 | -04A | | | 0.0 p | |
| Cr | 04-Mar | 8602087 | -04A | | | 0.0 a | |
| Cr | 31-Mar | 8602120 | -04E | | | 2.7 a | |
| Cr | 31-Mar | 8602100 | -02A | | | NC p | |
| Cr | 31-Mar | 8602159 | -01E | | | NC a | |
| Cr | 31-Mar | 8602047 | -01 | | | NC p | |
| Cr | 31-Mar | 8602159 | -01E | | | NC p | |
| Cr | 31-Mar | 8602047 | -04 | | | 0.0 a | |
| Cr | 31-Mar | 8602120 | -01E | | | 25 p | |
| Cr | 31-Mar | 8602100 | -02A | | | NC a | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis | | SAM | | QC Check | | Matrix Spike | | Duplicate | | Reagent | |
|-----------|----------|-----------|----------|-----|------------|------------|--------------|------------|-----------|-------|---------|---------|
| | Date | Workorder | Fraction | SAM | % Recovery | % Recovery | % Recovery | % Recovery | Analyses | % RPD | Blanks | (ug/ml) |
| Cr | 31-Mar | 8602197 | -05 | | | | | | 15.9 | P | | |
| Cr | 31-Mar | 8603004 | -03 | | | | | | NC | | | |
| Cr | 23-Apr | 8602113 | -08 | | | | | | NC | | | |
| Cr | 31-Mar | 8602100 | Blank | | | | | | | | | <.005 |
| Cr | 31-Mar | 8602047 | Blank | | | | | | | | | <.005 |
| Cr | 31-Mar | 8602159 | Blank | | | | | | | | | *.009 |
| Cr | 31-Mar | 8603004 | Blank | | | | | | | | | <.005 |
| Cr | 04-Mar | fn-6 | Blank | | | | | | | | | *.012 |
| Cr | 31-Mar | fn-4 | Blank | | | | | | | | | <.005 |
| Cr | 31-Mar | fn-2 | Blank | | | | | | | | | <.005 |
| Cr | 23-Apr | 8602113 | Blank | | | | | | | | | 0.042 |
| Cr | 04-Mar | 8601240 | Blank | | | | | | | | | <.005 |
| Cr | 04-Mar | fn-5 | Blank | | | | | | | | | <.005 |
| Mean | | | | | 101 | 87 | | | | | | |
| RSD (%) | | | | | 2.2 | 8.7 | | | | | | |
| Hg | 03-Feb | 8601240 | QC | | 108 | | | | | | | |
| Hg | 03-Feb | 8601240 | QC | | 108 | | | | | | | |
| Hg | 03-Feb | 8601240 | QC | | 100 | | | | | | | |
| Hg | 03-Feb | 8601240 | QC | | 100 | | | | | | | |
| Hg | 06-Feb | 8602019 | QC | | 90 | | | | | | | |
| Hg | 06-Feb | 8602019 | QC | | 107 | | | | | | | |
| Hg | 06-Feb | 8602019 | QC | | 95 | | | | | | | |
| Hg | 10-Feb | 8602047 | QC | | 100 | | | | | | | |
| Hg | 10-Feb | 8602047 | QC | | 100 | | | | | | | |
| Hg | 10-Feb | 8602047 | QC | | 108 | | | | | | | |
| Hg | 12-Feb | 8602019 | QC | | 100 | | | | | | | |
| Hg | 12-Feb | 8602019 | QC | | 105 | | | | | | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | | Matrix Spike | | Duplicate | | Reagent | |
|-----------|---------------|---------------|--------------|------------|--|--------------|--|-----------|--|---------|---------|
| | | | | % Recovery | | % Recovery | | % RPD | | % RPD | (ug/ml) |
| Hg | 12-Feb | 8602019 | QC | 100 | | | | | | | |
| Hg | 20-Feb | 8602100 | QC | 96 | | | | | | | |
| Hg | 20-Feb | 8602067 | QC | 110 | | | | | | | |
| Hg | 20-Feb | 8602100 | QC | 105 | | | | | | | |
| Hg | 20-Feb | 8602067 | QC | 110 | | | | | | | |
| Hg | 20-Feb | 8602067 | QC | 96 | | | | | | | |
| Hg | 24-Feb | 8602120 | QC | 96 | | | | | | | |
| Hg | 24-Feb | 8602120 | QC | 100 | | | | | | | |
| Hg | 24-Feb | 8602113 | QC | 96 | | | | | | | |
| Hg | 24-Feb | 8602067 | QC | 96 | | | | | | | |
| Hg | 24-Feb | 8602113 | QC | 100 | | | | | | | |
| Hg | 06-Mar | 8602139 | QC | 100 | | | | | | | |
| Hg | 06-Mar | 8602139 | QC | 105 | | | | | | | |
| Hg | 06-Mar | 8602139 | QC | 100 | | | | | | | |
| Hg | 07-Mar | 8602176 | QC | 84 | | | | | | | |
| Hg | 07-Mar | 8602176 | QC | 92 | | | | | | | |
| Hg | 07-Mar | 8602159 | QC | 92 | | | | | | | |
| Hg | 07-Mar | 8602159 | QC | 92 | | | | | | | |
| Hg | 07-Mar | 8602159 | QC | 80 | | | | | | | |
| Hg | 09-Mar | 8602197 | QC | 100 | | | | | | | |
| Hg | 09-Mar | 8603004 | QC | 100 | | | | | | | |
| Hg | 09-Mar | 8603004 | QC | 88 | | | | | | | |
| Hg | 09-Mar | 8602197 | QC | 100 | | | | | | | |
| Hg | 09-Mar | 8602197 | QC | 88 | | | | | | | |
| Hg | 03-Feb | 8601240 | -09A | | | | | | | 140 P | |
| Hg | 08-Feb | 8601240 | -04A | | | | | | | 120 P | |
| Hg | 06-Feb | 8602001 | -01D | | | | | | | 110 a | |
| Hg | 10-Feb | 8602047 | -01E | | | | | | | 110 P | |
| Hg | 12-Feb | 8602019 | -03G | | | | | | | 110 a | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM | | QC Check | Matrix Spike | | Duplicate | | Reagent |
|-----------|---------------|-----------|----------|----------|--------------|------------|-----------|--------|---------|
| | | Workorder | Fraction | | X Recovery | X Recovery | Analyses | Blanks | |
| | | | | | | | | | (ug/ml) |
| Hg | 20-Feb | 8602041 | -05E | | | 110 P | | | |
| Hg | 09-Mar | 8603004 | -10 | | | 110 a | | | |
| Hg | 09-Mar | 8602197 | -06 | | | 110 P | | | |
| Hg | 20-Feb | 8602079 | -04A | | | 105 P | | | |
| Hg | 20-Feb | 8602060 | -05C | | | 100 a,d | | | |
| Hg | 24-Feb | 8602113 | -04G | | | 100 P | | | |
| Hg | 24-Feb | 8602067 | -04E | | | 100 P | | | |
| Hg | 20-Feb | 8602031 | -03G | | | 95 P | | | |
| Hg | 20-Feb | 8602087 | -05A | | | 95 P | | | |
| Hg | 24-Feb | 8602120 | -05E | | | 95 P | | | |
| Hg | 06-Mar | 8602139 | -08A | | | 90 P | | | |
| Hg | 20-Feb | 8602100 | -04A | | | 85 P | | | |
| Hg | 07-Mar | 8602176 | -05G | | | 80 P | | | |
| Hg | 06-Feb | 8602019 | -04G | | | 54 P | | | |
| Hg | 10-Feb | 8602047 | -02E | | | | NC P | | |
| Hg | 20-Feb | 8602060 | -03C | | | | NC a | | |
| Hg | 20-Feb | 8602079 | -01A | | | | NC | | |
| Hg | 24-Feb | 8602120 | -05E | | | | NC P | | |
| Hg | 06-Mar | 8602139 | -08A | | | | NC P | | |
| Hg | 07-Mar | 8602159 | -01 | | | | 7.5 a | | |
| Hg | 07-Mar | 8602176 | Blank | | | | | | <.0002 |
| Hg | 08-Feb | 8601240 | Blank | | | | | | <.0002 |
| Hg | 06-Mar | 8602139 | Blank | | | | | | <.0002 |
| Hg | 10-Feb | 8602047 | Blank | | | | | | *.0002 |
| Hg | 24-Feb | 8602067 | Blank | | | | | | <.0002 |
| Hg | 24-Feb | 8602113 | Blank | | | | | | <.0002 |
| Hg | 24-Feb | 8602120 | Blank | | | | | | <.0002 |
| Hg | 03-Feb | 8601240 | Blank | | | | | | *.0004 |
| Hg | 09-Mar | 8602197 | Blank | | | | | | <.0002 |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAH Workorder | SAH Fraction | QC Check | Matrix Spike | Duplicate Analyses | Reagent Blanks |
|-----------|---------------|---------------|--------------|------------|--------------|--------------------|----------------|
| | | | | % Recovery | % Recovery | % RPD | (ug/ml) |
| Hg | 20-Feb | 8602100 | Blank | | | | <.0002 |
| Mean | | | | 99 | | 101 | |
| RSD (%) | | | | 7.2 | | 17.3 | |
| Pb | 11-Feb | 8601240 | QC | 93 | | | |
| Pb | 11-Feb | 8601240 | QC | 102 | | | |
| Pb | 17-Feb | 8602047 | QC | 107 | | | |
| Pb | 17-Feb | 8602047 | QC | 98 | | | |
| Pb | 17-Feb | 8602047 | QC | 104 | | | |
| Pb | 17-Feb | 8602019 | QC | 111 | | | |
| Pb | 17-Feb | 8602067 | QC | 105 | | | |
| Pb | 17-Feb | 8602019 | QC | 98 | | | |
| Pb | 17-Feb | 8602019 | QC | 100 | | | |
| Pb | 17-Feb | 8602067 | QC | 114 | | | |
| Pb | 21-Feb | 8602113 | QC | 98 | | | |
| Pb | 21-Feb | 8602113 | QC | 100 | | | |
| Pb | 21-Feb | 8602100 | QC | 100 | | | |
| Pb | 21-Feb | 8602100 | QC | 98 | | | |
| Pb | 21-Feb | 8602113 | QC | 100 | | | |
| Pb | 07-Mar | 8602139 | QC | 100 | | | |
| Pb | 07-Mar | 8602139 | QC | 95 | | | |
| Pb | 07-Mar | 8602120 | QC | 100 | | | |
| Pb | 07-Mar | 8602120 | QC | 100 | | | |
| Pb | 09-Mar | 8602139 | QC | 93 | | | |
| Pb | 09-Mar | 8602139 | QC | 95 | | | |
| Pb | 11-Mar | 8602176 | QC | 107 | | | |
| Pb | 11-Mar | 8602176 | QC | 105 | | | |
| Pb | 11-Mar | 8603004 | QC | 107 | | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis | | SAM | | QC Check | Matrix Spike | | Duplicate | | Reagent |
|-----------|----------|-----------|----------|-----|----------|--------------|------------|-----------|--------|---------|
| | Date | Workorder | Fraction | SAM | | % Recovery | % Recovery | Analyses | Blanks | |
| | | | | | | | | % RPD | | (ug/ml) |
| Pb | 11-Mar | 8603004 | QC | | 98 | | | | | |
| Pb | 11-Mar | 8602176 | QC | | 98 | | | | | |
| Pb | 12-Mar | 8602197 | QC | | 104 | | | | | |
| Pb | 12-Mar | 8602159 | QC | | 111 | | | | | |
| Pb | 12-Mar | 8602159 | QC | | 104 | | | | | |
| Pb | 12-Mar | 8602159 | QC | | 107 | | | | | |
| Pb | 12-Mar | 8602197 | QC | | 100 | | | | | |
| Pb | 12-Mar | 8602159 | QC | | 107 | | | | | |
| Pb | 12-Mar | 8602159 | QC | | 111 | | | | | |
| Pb | 12-Mar | 8602159 | QC | | 104 | | | | | |
| Pb | 12-Mar | 8602197 | QC | | 100 | | | | | |
| Pb | 17-Feb | 8602047 | -05E | | | | | | | 167 p.c |
| Pb | 21-Feb | 8602079 | -04A | | | | | | | 113 a,d |
| Pb | 21-Feb | 8602113 | -04C | | | | | | | 108 a,d |
| Pb | 17-Feb | 8602060 | -02C | | | | | | | 100 a |
| Pb | 21-Feb | 8602087 | -05A | | | | | | | 100 a,d |
| Pb | 07-Mar | 8602120 | -01E | | | | | | | 100 a |
| Pb | 17-Feb | 8602047 | -01E | | | | | | | 92 a |
| Pb | 21-Feb | 8602100 | -02A | | | | | | | 92 a,d |
| Pb | 17-Feb | 8602041 | -01E | | | | | | | 88 a |
| Pb | 07-Mar | 8602139 | -08A | | | | | | | 88 a |
| Pb | 11-Mar | 8602176 | -05C | | | | | | | 88 a,b |
| Pb | 17-Feb | 8602019 | -04C | | | | | | | 85 p |
| Pb | 17-Feb | 8602001 | -02D | | | | | | | 83 a,d |
| Pb | 17-Feb | 8602031 | -02C | | | | | | | 83 a |
| Pb | 11-Feb | 8601240 | -09A | | | | | | | 79 a |
| Pb | 11-Mar | 8603004 | -08 | | | | | | | 79 a |
| Pb | 12-Mar | 8602197 | -01 | | | | | | | 79 a,d |
| Pb | 12-Mar | 8602197 | -01 | | | | | | | 79 a,d |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | | Matrix Spike | | Duplicate Analyses | | Reagent Blanks | |
|-----------|---------------|---------------|--------------|-----------|----------|--------------|----------|--------------------|-----|----------------|---------|
| | | | | \bar{x} | Recovery | \bar{x} | Recovery | \bar{x} | RPD | | (ug/ml) |
| Pb | 17-Feb | 8602019 | -03G | | | | | 75 | a | | |
| Pb | 17-Feb | 8602001 | -02D | | | | | 71 | a,b | | |
| Pb | 21-Feb | 8602087 | -05A | | | | | 71 | a,b | | |
| Pb | 17-Feb | 8602001 | -06D | | | | | 65 | p | | |
| Pb | 07-Mar | 8602139 | -01A | | | | | 65 | p | | |
| Pb | 17-Feb | 8602067 | -03E | | | | | 63 | a | | |
| Pb | 21-Feb | 8602100 | -02A | | | | | 63 | a,b | | |
| Pb | 21-Feb | 8602113 | -02G | | | | | 60 | p | | |
| Pb | 11-Mar | 8602176 | -05G | | | | | 54 | a,b | | |
| Pb | 12-Mar | 8602197 | -02 | | | | | 51 | p | | |
| Pb | 20-Feb | 8602100 | -04A | | | | | 50 | p,b | | |
| Pb | 21-Feb | 8602113 | -04G | | | | | 50 | a,b | | |
| Pb | 21-Feb | 8602079 | -04A | | | | | 46 | a,b | | |
| Pb | 21-Feb | 8602079 | -02A | | | | | 45 | p | | |
| Pb | 17-Feb | 8602047 | -04E | | | | | | NC | p | |
| Pb | 17-Feb | 8602047 | -01E | | | | | | 0.0 | a | |
| Pb | 17-Feb | 8602067 | -04E | | | | | | 2.7 | a | |
| Pb | 17-Feb | 8602060 | -01C | | | | | | 9.1 | p | |
| Pb | 19-Feb | 8602031 | -02G | | | | | | 9.4 | | |
| Pb | 21-Feb | 8602113 | -01G | | | | | | NC | p | |
| Pb | 21-Feb | 8602100 | -03A | | | | | | 22 | | |
| Pb | 21-Feb | 8602079 | -01A | | | | | | 2.1 | | |
| Pb | 07-Mar | 8602139 | -02A | | | | | | 3.3 | p | |
| Pb | 07-Mar | 8602139 | -08A | | | | | | NC | a | |
| Pb | 11-Mar | 8603004 | -03 | | | | | | 15 | | |
| Pb | 11-Mar | 8603004 | -10 | | | | | | 13 | | |
| Pb | 12-Mar | 8602197 | -01 | | | | | | 20 | p | |
| Pb | 12-Mar | 8602197 | -01 | | | | | | 0.0 | a | |
| Pb | 07-Mar | 8602120 | Blank | | | | | | | | <.0011 |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis | | SAM | | QC Check | Matrix Spike | | Duplicate | | Reagent | |
|-----------|----------|-----------|----------|-------|----------|--------------|------------|-----------|----------|---------|---------|
| | Date | Workorder | Fraction | Blank | | % Recovery | % Recovery | % RPD | Analyses | Blanks | (ug/ml) |
| Pb | 11-Mar | 8602176 | Blank | | | | | | | | *.004 |
| Pb | 17-Feb | 8602047 | Blank | | | | | | | | <.002 |
| Pb | 12-Mar | 8602159 | Blank | | | | | | | | <.002 |
| Pb | 12-Mar | 8602159 | Blank | | | | | | | | <.002 |
| Pb | 11-Feb | 8601240 | Blank | | | | | | | | <.002 |
| Pb | 12-Mar | 8602197 | Blank | | | | | | | | <.002 |
| Pb | 07-Mar | 8602139 | Blank | | | | | | | | <.001 |
| Pb | 21-Feb | 8602100 | Blank | | | | | | | | *.002 |
| Pb | 17-Feb | 8602067 | Blank | | | | | | | | *.004 |
| Pb | 21-Feb | 8602113 | Blank | | | | | | | | *.003 |
| Mean | | | | | | | | | | | 79 |
| RSD (%) | | | | | | | | | | | 30.8 |
| Se | 09-Feb | 8601240 | QC | | 88 | | | | | | |
| Se | 09-Feb | 8601240 | QC | | 88 | | | | | | |
| Se | 17-Feb | 8602067 | QC | | 99 | | | | | | |
| Se | 17-Feb | 8602019 | QC | | 98 | | | | | | |
| Se | 17-Feb | 8602019 | QC | | 100 | | | | | | |
| Se | 17-Feb | 8602019 | QC | | 105 | | | | | | |
| Se | 17-Feb | 8602067 | QC | | 105 | | | | | | |
| Se | 21-Feb | 8602113 | QC | | 103 | | | | | | |
| Se | 21-Feb | 8602100 | QC | | 108 | | | | | | |
| Se | 21-Feb | 8602113 | QC | | 103 | | | | | | |
| Se | 21-Feb | 8602113 | QC | | 103 | | | | | | |
| Se | 21-Feb | 8602100 | QC | | 103 | | | | | | |
| Se | 25-Feb | 8602047 | QC | | 90 | | | | | | |
| Se | 25-Feb | 8602047 | QC | | 85 | | | | | | |
| Se | 25-Feb | 8602047 | QC | | 103 | | | | | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis | | SAM | | QC Check | | Matrix Spike | | Duplicate | | Reagent | |
|-----------|----------|-----------|----------|-----|------------|------------|--------------|------------|-----------|-------|---------|---------|
| | Date | Workorder | Fraction | SAM | % Recovery | % Recovery | % Recovery | % Recovery | % RPD | % RPD | Blanks | (ug/ml) |
| Se | 25-Feb | 8602047 | QC | | 108 | | | | | | | |
| Se | 07-Mar | 8602120 | QC | | 85 | | | | | | | |
| Se | 07-Mar | 8602120 | QC | | 90 | | | | | | | |
| Se | 09-Mar | 8602139 | QC | | 98 | | | | | | | |
| Se | 09-Mar | 8602139 | QC | | 100 | | | | | | | |
| Se | 11-Mar | 8602176 | QC | | 98 | | | | | | | |
| Se | 11-Mar | 8603004 | QC | | 98 | | | | | | | |
| Se | 11-Mar | 8602176 | QC | | 92 | | | | | | | |
| Se | 12-Mar | 8602197 | QC | | 94 | | | | | | | |
| Se | 12-Mar | 8602159 | QC | | 94 | | | | | | | |
| Se | 12-Mar | 8602159 | QC | | 90 | | | | | | | |
| Se | 12-Mar | 8602197 | QC | | 86 | | | | | | | |
| Se | 12-Mar | 8602159 | QC | | 86 | | | | | | | |
| Se | 21-Feb | 8602100 | -02A | | | | | | 104 a.d | | | |
| Se | 21-Feb | 8602079 | -04A | | | | | | 100 a.d | | | |
| Se | 11-Mar | 8603004 | -03 | | | | | | 100 a.d | | | |
| Se | 11-Mar | 8602176 | -03G | | | | | | 100 a.d | | | |
| Se | 17-Feb | 8602060 | -05C | | | | | | 96 a.d | | | |
| Se | 21-Feb | 8602087 | -04A | | | | | | 96 a.d | | | |
| Se | 09-Feb | 8601240 | -05A | | | | | | 92 a.d | | | |
| Se | 09-Mar | 8602139 | -03A | | | | | | 92 a.d | | | |
| Se | 17-Feb | 8602067 | -04E | | | | | | 88 a.d | | | |
| Se | 17-Feb | 8602019 | -04G | | | | | | 88 a.d | | | |
| Se | 21-Feb | 8602113 | -04G | | | | | | 88 a.b | | | |
| Se | 25-Feb | 8602047 | -01E | | | | | | 88 p | | | |
| Se | 17-Feb | 8602001 | -01D | | | | | | 83 a.d | | | |
| Se | 11-Mar | 8603004 | -03 | | | | | | 83 a.b | | | |
| Se | 17-Feb | 8602001 | -06D | | | | | | 78 p | | | |
| Se | 07-Mar | 8602120 | -01E | | | | | | 76 a.d | | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check | | Matrix Spike | | Duplicate Analyses | | Reagent Blanks | |
|-----------|---------------|---------------|--------------|------------|--|--------------|--|--------------------|------|----------------|--|
| | | | | % Recovery | | % Recovery | | % RPD | | (ug/ml) | |
| Se | 09-Feb | 8601240 | -05A | | | 75 a,b | | | | | |
| Se | 17-Feb | 8602031 | -02C | | | 75 a | | | | | |
| Se | 17-Feb | 8602041 | -03E | | | 75 a | | | | | |
| Se | 11-Mar | 8602176 | -03G | | | 75 a,d | | | | | |
| Se | 12-Mar | 8602197 | -02 | | | 71 a,d | | | | | |
| Se | 17-Feb | 8602019 | -04G | | | 67 a,b | | | | | |
| Se | 21-Feb | 8602079 | -04A | | | 67 a,c | | | | | |
| Se | 21-Feb | 8602100 | -02A | | | 67 a,b | | | | | |
| Se | 17-Feb | 8602001 | -01D | | | 63 a,b | | | | | |
| Se | 21-Feb | 8602087 | -04A | | | 63 a,b | | | | | |
| Se | 09-Mar | 8602139 | -03A | | | 54 a,c | | | | | |
| Se | 07-Mar | 8602120 | -01E | | | 52 a,b | | | | | |
| Se | 17-Feb | 8602060 | -02C | | | 50 p | | | | | |
| Se | 21-Feb | 8602113 | -04G | | | 50 a,b | | | | | |
| Se | 12-Mar | 8602197 | -02 | | | 29 a,b | | | | | |
| Se | 21-Feb | 8602079 | -02A | | | 0 p | | | | | |
| Se | 21-Feb | 8602100 | -04A | | | 0 p | | | | | |
| Se | 21-Feb | 8602113 | -02G | | | 0 p | | | | | |
| Se | 25-Feb | 8602047 | -05E | | | 0 p | | | | | |
| Se | 09-Mar | 8602139 | -01A | | | 0 p | | | | | |
| Se | 12-Mar | 8602197 | -02 | | | 0 p | | | | | |
| Se | 17-Feb | 8602067 | -01E | | | | | | NC a | | |
| Se | 17-Feb | 8602060 | -01C | | | | | | NC p | | |
| Se | 21-Feb | 8602113 | -01G | | | | | | NC p | | |
| Se | 21-Feb | 8602079 | -01A | | | | | | NC | | |
| Se | 21-Feb | 8602100 | -03A | | | | | | NC | | |
| Se | 25-Feb | 8602047 | -04E | | | | | | NC p | | |
| Se | 25-Feb | 8602047 | -01E | | | | | | NC a | | |
| Se | 09-Mar | 8602139 | -02A | | | | | | NC p | | |

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | SAM Workorder | SAM Fraction | QC Check % Recovery | Matrix Spike % Recovery | Duplicate Analyses % RPD | Reagent Blanks (ug/ml) |
|-----------|---------------|---------------|--------------|---------------------|-------------------------|--------------------------|------------------------|
| Se | 12-Mar | 8602197 | -01 | | | NC | P |
| Se | 25-Feb | 8602047 | Blank | | | | <.003 |
| Se | 12-Mar | 8602159 | Blank | | | | <.003 |
| Se | 21-Feb | 8602100 | Blank | | | | <.002 |
| Se | 17-Feb | 8602067 | Blank | | | | <.002 |
| Se | 07-Mar | 8602120 | Blank | | | | <.003 |
| Se | 09-Mar | 8602139 | Blank | | | | <.002 |
| Se | 12-Mar | 8602197 | Blank | | | | <.003 |
| Se | 11-Mar | 8602176 | Blank | | | | <.003 |
| Se | 21-Feb | 8602113 | Blank | | | | <.002 |
| Se | 09-Feb | 8601240 | Blank | | | | <.003 |
| Mean | | | | 96 | 64 | | |
| RSD (%) | | | | 7.6 | 51.4 | | |

a - analytical spike or duplicate

b - recovery in undiluted sample

c - spike added less than 0.2 times endogenous level

d - recovery in diluted (1:10 usually) sample

p - predigestion spike or duplicate

* - measured value less than limit of quantitation

fn-1 = for workorders: 8602047, 8602176, 8602197, 8603004

fn-2 = for workorders: 8602176 & 8602219

fn-3 = for workorders: 8602100, 8602120, 8602139, 8602159

fn-4 = for workorders: 8602120 & 8602139

fn-5 = for workorders: 8601240, 8602031, 8602041, 8602060, 8602067, 8602079, 8602087

TABLE A.2-7 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN AQUEOUS SAMPLES

| Parameter | Analysis Date | Workorder | SAM | Fraction | QC Check | | Matrix Spike | | Duplicate | | Reagent | |
|-----------|---------------|-----------|-----|----------|------------|---|--------------|---|-----------|---|---------|---------|
| | | | | | % Recovery | X | % Recovery | X | Analyses | X | Blanks | (ug/ml) |

in-6 = for workorders: 8602060 & 8602067

TABLE A.2-8

QC SAMPLE RESULTS FOR HYDROCARBON AND OIL & GREASE ANALYSES IN WATER SAMPLES

| Parameter | Analysis | | SAM | Fraction | QC Check | | Matrix Spike | | Duplicate | | Reagent Blanks |
|--------------|----------|-----------|-----|----------|------------|--|--------------|--|-----------|--|-------------------|
| | Date | Workorder | | | % Recovery | | % Recovery | | % RPD | | |
| Hydrocarbons | 26-Feb | 8602123 | | QC | 104 | | | | | | |
| Hydrocarbons | 26-Feb | 8602123 | | QC | 118 | | | | | | |
| Mean | | | | | 111 | | | | | | |
| RSD (%) | | | | | 8.9 | | | | | | |
| Oil & Grease | 14-Mar | 8602120 | | QC | 96 | | | | | | |
| Oil & Grease | 14-Feb | 8602067 | | QC | 99 | | | | | | |
| Oil & Grease | 14-Feb | 8602067 | | QC | 99 | | | | | | |
| Mean | | | | | 98 | | | | | | |
| RSD (%) | | | | | 1.8 | | | | | | |

TABLE A.2-9

Gross α/β QA/QC

12-18-85

| | | Net Activities | | |
|---|--|--------------------------------|----------------------------------|----------------|
| | | α | β | |
| I. <u>Duplicate Samples</u> | | | | |
| 1) | 860048 SB-11-C | 6.5 \pm 6.2 7.6 \pm 5.8 | 16.8 \pm 4.1 10.0 \pm 3.9 | pCi/g pCi/g |
| 2) | 860260 - 03A | 3.3 \pm 2.4 3.5 \pm 2.3 | 7.2 \pm 2.2 5.6 \pm 2.1 | pCi/L pCi/L |
| II. <u>Duplicate Counts</u> | | | | |
| | 860259 - 02A | <1.6 3.6 \pm 4.0 | <4.2 <4.2 | pCi/L pCi/L |
| III. <u>Samples Spiked with 10uL ^{241}Am + 0.5 mL ^{90}Sr Standard Solutions</u> | | | | |
| 1) | 860259 - 02A + Mixed Spike (corrected for sample volume = 65 mL) | 21.0 \pm 5.2 | 131.1 \pm 7.7 | pCi/L |
| | Mixed spike alone | 2.4 \pm 0.3 | 9.6 \pm 0.5 | pCi/spike |
| | 860259 - 02A alone | <1.6 | <4.2 | pCi/L |
| 2) | 860038 SB-6-D + Mixed Spike (corrected for sample mass = 0.10158g) | 87.9 \pm 10.5 | 113.6 \pm 7.0 | pCi/g |
| | Mixed spike alone | 1.7 \pm 0.3 | 7.2 \pm 0.5 | pCi/spike |
| | 860038, SB-6-D alone | 12.4 \pm 7.9 | 19.5 \pm 4.3 | pCi/g |
| IV. <u>DIW Blanks, Duplicate Samples</u> | | | | |
| | 0.5 L | <0.4 | <0.7 | pCi/L |
| | 0.5 L | <0.4 | <0.7 | pCi/L |

TABLE A.2-9 (Continued)

V. Stock Standard Solutions

| | | <u>α</u> | <u>β</u> | <u>Date Counted</u> |
|-------|----|----------------------------|---------------------------|---------------------|
| Am | 1) | 2.18 ± 0.3 | 0.55 ± 0.3 | 8/18 |
| | 2) | 2.34 ± 0.3 | 0.76 ± 0.3 | 9/9 |
| Sr-90 | 1) | <0.4 | 6.52 ± 0.4 | 8/19 |
| | 2) | <0.4 | 7.53 ± 0.5 | 9/6 |
| Mixed | 1) | 1.69 ± 0.3 | 7.22 ± 0.5 | 8/18 |
| | 2) | 2.40 ± 0.3 | 9.56 ± 0.5 | 9/6 |

VI. Standard Instrument Check Sources (1 minute counts)

| | | <u>α</u> | <u>β</u> |
|--------|-----------|----------------------------|---------------------------|
| C14 | 1986 Avg. | - | 59019 ± 1025 (1.7%) |
| | | | 58878 |
| | 1 Jul | - | 58540 |
| | | | 59038 |
| Pb-210 | 1986 | 1189 ± 73 (6.1%) | 2266 ± 223 (9.8%) |
| | | 1144 | 2203 |
| | 1 Jul | 1106 | 2055 |
| | | 1133 | 2098 |
| | 13 Aug | 1226 | 1995 |

TABLE A.2-9 (Continued)

AIR FORCE GAMMA CS-137 QA/QC

| | | | |
|----|--------------------------------------|----------------------|--------|
| I. | EPA-LV Interlab Unknown CS-137 Meas. | 11.2 \pm 2.0 pCi/L | (6/30) |
| | EPA Reported Actual | 10 \pm 5 pCi/L | |

| II. | <u>Duplicate Counts</u> | | <u>Detector</u> |
|-----|---|-----------------------|------------------|
| 1) | 860038 SB-6-D (97.0 g (in teflon jar)) | <46 <41 pCi/kg | Lo-Pro Lo-Pro |
| 2) | 860258-01A | <10.7 <9.9 pCi/kg | Lo-Pro Lo-Pro |
| 3) | 860259-02A | <12.6 <12.9 pCi/kg | Hi-Pro Hi-Pro |

III. CS-137 Std in Teflon Jar

| | | | |
|-------------------------------------|--------|-----|--------|
| 8-13 | 238169 | pCi | Hi-Pro |
| 8-22 | 239918 | pCi | Hi-Pro |
| 8-13 | 235603 | pCi | Lo-Pro |
| 8-22 | 240559 | pCi | Lo-Pro |
| Activity based in known std. concn. | 237498 | pCi | |

| | | | |
|-----|---|-------------|--------|
| IV. | 1) DIW Blank in Teflon Jar | <71 pCi/kg | Lo-Pro |
| | 0.093 kg in Teflon Jar | <100 pCi/kg | Hi-Pro |
| | 2) DIW Blank in Marinelli Beaker (1.00 ug) | <3.4 pCi/kg | Lo-Pro |

CS-137 Standard in Marinelli Beaker

| <u>Lo-Pro</u> | <u>Net cps</u> | | <u>Date</u> |
|------------------|-----------------|------|-------------|
| | <u>Hi-Pro</u> | | |
| - | 8.41 | | 3/10 |
| - | 8.17 | | 6/9 |
| 11.63 | - | | 6/10 |
| - | 8.03 | | 8/28 |
| 11.16 | - | | 8/29 |
| - | 7.98 | | 10/24 |
| 11.40 | - | | 10/25 |
| 11.57 | 7.87 | | 10/27 |
| 11.38 | - | | 12/3 |
| 11.43 \pm 0.18 | 8.09 \pm 0.21 | Avg. | |

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Field Sample No. _____

Company Sampled/Address GENERAL DYNAMICS - FORT WORTH, PLANT 4
Sample Point Description Ground water & Surface Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name NEIL ROBINSON Date/Time Sampled 1-29-86, 1-30-86

Amount of Sample Collected NINE 500 ml PLASTIC, THIRTY SIX 40 ml GLASS

Sample Description SURFACE WATER, GROUND WATER

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Toxic | <input type="checkbox"/> Skin irritant | <input type="checkbox"/> Flammable (FP < 40°C) |
| <input type="checkbox"/> Pyrophoric | <input type="checkbox"/> Lachrymator | <input type="checkbox"/> Shock sensitive |
| <input type="checkbox"/> Acidic | <input type="checkbox"/> Biological | <input checked="" type="checkbox"/> Carcinogenic - suspect |
| <input type="checkbox"/> Caustic | <input type="checkbox"/> Peroxide | <input type="checkbox"/> Radioactive |
| <input type="checkbox"/> Other _____ | | |

Sample Allocation/Chain of Possession:

Organization Name RADIAN CORP.
Received By NEIL ROBINSON Date Received 1-30-86 Time 1800
Transported By NEIL ROBINSON Lab Sample No. 86-01-239
Comments Neil Robinson
Inclusive Dates of Possession 1-29-86, 1-30-86

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. _____
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. _____
Comments _____
Inclusive Dates of Possession _____

work order. E461234

Volatile Organics

DETECTION LIMITS

| METHOD 661 | METHOD DETECTION LIMIT UG/L | | |
|--------------------------|--------------------------------------|--|--|
| COMPOUND | -C1--C9 | | |
| Chloromethane | 0.8 | | |
| Bromomethane | 11.8 | | |
| Vinyl Chloride | 1.8 | | |
| Chloroethane | 5.2 | | |
| Methylene Chloride | 2.5 | | |
| Trichlorofluoromethane | 1.0 | | |
| 1,1-Dichloroethene | 1.3 | | |
| 1,1-Dichloroethane | 0.7 | | |
| Trans-1,2-Dichloroethene | 1.0 | | |
| Chloroform | 0.5 | | |
| 1,2-Dichloroethane | 0.3 | | |
| 1,1,1-Trichloroethane | 0.3 | | |
| Carbon Tetrachloride | 1.2 | | |
| Bromodichloromethane | 1.0 | | |
| 1,2-Dichloropropane | 0.4 | | |
| Trichloroethene | 1.2 | | |
| Dibromochloromethane | 0.9 | | |
| 2-Chloroethylvinyl Ether | 1.3 | | |
| Bromoform | 2.0 | | |
| Tetrachloroethene | 0.3 | | |
| Chlorobenzene | 2.5 | | |
| 1,3-Dichlorobenzene | 3.2 | | |
| 1,2-Dichlorobenzene | 1.5 | | |
| 1,4-Dichlorobenzene | 2.4 | | |

Detection Limits

Volatile Organics

Method 662

| Compound | Detection Limit $\mu\text{g/L}$ | | | |
|---------------------|---------------------------------|--|--|--|
| | 0.1-0.2 | | | |
| Benzene | 0.2 | | | |
| Toluene | 0.2 | | | |
| Ethylbenzene | 0.2 | | | |
| 1,4-Dichlorobenzene | 0.3 | | | |
| 1,3-Dichlorobenzene | 0.4 | | | |
| 1,2-Dichlorobenzene | 0.4 | | | |
| Chlorobenzene | 0.2 | | | |

VOA RESULTS

| | | | |
|---------------------------|----------------------------------|---------------------|--|
| LAB # <u>SYSTEM BLANK</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| ===== | | ===== | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/3/72</u> ANALYST: <u>JSC</u> INSTRUMENT: <u>Qel</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | <u>ND</u> |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |
| | | | |

SURROGATE RECOVERIES:

601
Bromochloromethane _____
2-Bromo-1-Chloropropane _____
1,4-Dichlorobutane _____

602
a,a,a,-Trifluorotoluene _____

VOA RESULTS

| | | | |
|--|--|---|--|
| LAB # <u> </u> | | CLIENT NAME <u> </u> | |
| SAMPLE ID <u> </u> | | EPA METHOD <u> </u> | |
| EPA METHOD <u> </u> | | DATE: <u> </u> | |
| 601 | | ANALYST: <u> </u> | |
| DATE: <u> </u> | | INSTRUMENT: <u> </u> | |
| COMPOUND | | CONCENTRATION (ug/L) | |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM BLANK | |
|---------------------------|----------------------|---------------------|----------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD | DATE: | EPA METHOD | DATE: |
| 601 | 2/13/6 | 602 | |
| ANALYST: JSC | | ANALYST: | |
| INSTRUMENT: 4100 | | INSTRUMENT: | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | AGENT BLANK | |
|---------------------------|--|-------------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/3/84 ANALYST: GJP INSTRUMENT: DuPont | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethane | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | SURROGATE RECOVERIES: | |
| 1,2-Dichloropropane | | 601 | |
| Trans-1,3-Dichloropropene | | Bromochloromethane | |
| Trichloroethene | | 2-Bromo-1-Chloropropane | |
| Dibromochloromethane | | 1,4-Dichlorobutane | |
| 1,1,2-Trichlorethane | | 602 | |
| cis-1,3-Dichloropropene | | a,a,a,-Trifluorotoluene | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM BLANK | |
|---------------------------|--|-------------------------|----------------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: 1/2/96 ANALYST: JSC INSTRUMENT: Shimadzu | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | NP | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | SURROGATE RECOVERIES: | |
| 1,2-Dichloropropane | | 601 | |
| Trans-1,3-Dichloropropene | | Bromochloromethane | |
| Trichloroethene | | 2-Bromo-1-Chloropropane | |
| Dibromochloromethane | | 1,4-Dichlorobutane | |
| 1,1,2-Trichloroethane | | 602 | |
| cis-1,3-Dichloropropene | | a,a,a,-Trifluorotoluene | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | CLIENT NAME | | SAMPLE ID | |
|---------------------------|----------------------|---|----------------------|--|--|
| EPA METHOD 601 | | DATE: 1/2/86 ANALYST: CP INSTRUMENT: Juman | | EPA METHOD 602 DATE: ANALYST: INSTRUMENT: | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) | | |
| Chloromethane | ND | Benzene | | | |
| Bromomethane | | Toluene | | | |
| Vinyl Chloride | | Ethyl benzene | | | |
| Chloroethane | | Chlorobenzene | | | |
| Methylene chloride | | 1,4-Dichlorobenzene | | | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | | | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | | | |
| 1,1-Dichloroethane | | P-Xylene | | | |
| Trans-1,2-Dichloroethene | | M-Xylene | | | |
| Chloroform | | O-Xylene | | | |
| 1,2-Dichloroethane | | SURROGATE RECOVERIES: 601 Bromochloromethane _____ 2-Bromo-1-Chloropropane _____ 1,4-Dichlorobutane _____ 602 a,a,a,-Trifluorotoluene _____ | | | |
| 1,1,1-Trichloroethane | | | | | |
| Carbon tetrachloride | | | | | |
| Bromodichloromethane | | | | | |
| 1,2-Dichloropropane | | | | | |
| Trans-1,3-Dichloropropene | | | | | |
| Trichloroethene | | | | | |
| Dibromochloromethane | | | | | |
| 1,1,2-Trichloroethane | | | | | |
| cis-1,3-Dichloropropene | | | | | |
| 2-Chloroethylvinyl ether | | | | | |
| Bromoform | | | | | |
| 1,1,2,2-Tetrachloroethane | | | | | |
| Tetrachloroethylene | | | | | |
| Chlorobenzene | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

1/31/76

G

G

| | CERTIFIED VALUE (mg/L) | ANALYZED VALUE | % REC |
|---------------------------|------------------------------|-------------------|-------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 8.7 | 94 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 7.9 | 79 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 58.3 | 136 |
| 1,2-Dichloroethane | 27.6 | 23.6 | 86 |
| 1,1,1-Trichloroethane | 14.3 | 14.5 | 101 |
| Carbon tetrachloride | 22.0 | 18.0 | 90 |
| Bromodichloromethane | 7.9 | 8.4 | 106 |
| 1,2-Dichloropropane | 8.0 | 8.2 | 103 |
| Trichloroethene | 22.2 | 22.4 | 101 |
| Dibromochloromethane | 16.7 | 14.4 | 86 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 10.4 | 105 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 9.6 | 117 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

3/3/36

| | CERTIFIED VALUE (mg/L) | G ANALYZED VALUE | G % REC |
|---------------------------|------------------------------|------------------------|------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 10.5 | 114 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.0 | 80 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 55.0 | 128 |
| 1,2-Dichloroethane | 27.6 | 25.0 | 91 |
| 1,1,1-Trichloroethane | 14.3 | 14.9 | 104 |
| Carbon tetrachloride | 20.0 | 19.2 | 96 |
| Bromodichloromethane | 7.9 | 9.7 | 123 |
| 1,2-Dichloropropane | 8.0 | 9.4 | 117 |
| Trichloroethene | 22.2 | 24.9 | 112 |
| Dibromochloromethane | 16.7 | 16.2 | 97 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 9.2 | 93 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.9 | 109 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/3/20 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 34.0 | | | 111 | | |
| | Toluene | 4.1 | 4.6 | | | 113 | | |
| | Ethylbenzene | 11.5 | 11.6 | | | 100 | | |
| | P-Xylene | 19.1 | 21.2 | | | 111 | | |
| | M-Xylene | 42.6 | 46.9 | | | 110 | | |
| | O-Xylene | 10.6 | 10.6 | | | 100 | | |
| | | | | | | | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

SURROGATE RECOVERIES

LAB #: EGC1239-C1A

SAMPLE ID: C-1

DATE: 1-31-84

INSTRUMENT: C

601/8010

BROMOCHLOROMETHANE: 97%

2-BROMO-1-CHLOROPROPANE: 94%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELC1234-C2A

SAMPLE ID: C-2

DATE: 1-31-84

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 101%

2-BROMO-1-CHLOROPROPANE: 99%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 84C1239-C3A

SAMPLE ID: C-3

DATE: 1-31-86

INSTRUMENT: C

601/8010

BROMOCHLOROMETHANE: 95%

2-BROMO-1-CHLOROPROPANE: 92%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELC1239-C4A

SAMPLE ID: C-4

DATE: 1-31-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 102%

2-BROMO-1-CHLOROPROPANE: 100%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 86C1234-15A

SAMPLE ID: C-5

DATE: 1-31-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 86%, 115%

2-BROMO-1-CHLOROPROPANE: 98%, 113%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELC 1539-06A

SAMPLE ID: P 4

DATE: 1-31-80

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 105%

2-BROMO-1-CHLOROPROPANE: 96%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 86C1239-C7A

SAMPLE ID: P-7M

DATE: 1-31-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 120%

2-BROMO-1-CHLOROPROPANE: 100%

602/802

a, a, a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELC1339-CEA

SAMPLE ID: P-70

DATE: 1-31-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 103%

2-BROMO-1-CHLOROPROPANE: 83%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: EW1339-C9A

SAMPLE ID: CREEK SKEP

DATE: 2-3-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 98%

2-BROMO-1-CHLOROPROPANE: 107%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: E6C1234-C1C

SAMPLE ID: C-1

DATE: 2-3-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a, a, a-TRIFLUOROTOLUENE: 98%

SURROGATE RECOVERIES

LAB #: EW1234-CSC

SAMPLE ID: C-2

DATE: 2-3-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 100%

SURROGATE RECOVERIES

LAB #: ECU1239-C3C

SAMPLE ID: C-3

DATE: 2-3-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 97%

SURROGATE RECOVERIES

LAB #: EGC1234-C4C

SAMPLE ID: C-4

DATE: 2-3-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 100%

SURROGATE RECOVERIES

LAB #: ELC1239-C5C

SAMPLE ID: C-5

DATE: 2-3-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 114%, 105%

SURROGATE RECOVERIES

LAB #: EW1239-CLC

SAMPLE ID: P-4

DATE: 2-3-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 117%

SURROGATE RECOVERIES

LAB #: 8601239-C7C

SAMPLE ID: P-7M

DATE: 2-3-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 109%

SURROGATE RECOVERIES

LAB #: ELC1539-CEC

SAMPLE ID: P-7U

DATE: 2-3-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 122%

SURROGATE RECOVERIES

LAB #: SLCC 1234-CAC

SAMPLE ID: Creek seep

DATE: 2-3-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a, a, a-TRIFLUOROTOLUENE: 128%

SPIKE RECOVERY

EPA Method 602
Volatile Organics

2/3/81
RP
D

SAMPLE # 86 01239-09C

UNITS ~~Water~~ Plant 4
CAREK 500

| COMPOUND | SSR | SR | SA | ZR |
|---------------------|------|----|------|-----|
| Benzene | 41.0 | | 32.7 | 134 |
| Toluene | 6.2 | | 4.1 | 150 |
| Ethyl benzene | 14.5 | | 11.5 | 66 |
| 1,4-Dichlorobenzene | | | | |
| 1,3-Dichlorobenzene | | | | |
| 1,2-Dichlorobenzene | | | | |
| O-Xylene | 12.8 | | 10.6 | 120 |
| M-Xylene | 55.9 | | 42.6 | 131 |
| P-Xylene | 24.4 | | 19.1 | 128 |
| Chlorobenzene | | | - | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

SPIKE RECOVERY

| EPA METHOD 601 Volatile Organics | 8601239-09A PUMP 4 CAREK SEEP 2/3/86 RP G | | | | | | | |
|-------------------------------------|--|--------|------|-----|-----|----|----|----|
| COMPOUNDS | SSR | SR | SA | ZR | SSR | SR | SA | ZR |
| Chloromethane | | | | | | | | |
| Bromomethane | | | | | | | | |
| Vinyl chloride | | | | | | | | |
| Chloroethane | | | | | | | | |
| Methylene chloride | 11.1 | | 9.2 | 121 | | | | |
| Trichlorofluoromethane | | | | | | | | |
| 1,1-Dichloroethene | 9.0 | | 10.0 | 90 | | | | |
| 1,1-Dichloroethane | | | | | | | | |
| trans-1,2-Dichloroethene | 8.8 | 3.7 | 5.4 | 107 | | | | |
| Chloroform | 60.7 | | 43.0 | 141 | | | | |
| 1,2-Dichloroethane | 28.1 | | 27.6 | 102 | | | | |
| 1,1,1-Trichloroethane | 17.9 | | 14.3 | 125 | | | | |
| Carbon Tetrachloride | 25.0 | | 20.0 | 125 | | | | |
| Bromodichloromethane | 9.9 | | 7.9 | 125 | | | | |
| 1,2-Dichloropropane | 9.1 | | 8.0 | 114 | | | | |
| Trichloroethene | 60.0 | 20.0 | 22.2 | 180 | | | | |
| Dibromochloromethane | 13.2 | | 16.7 | 79 | | | | |
| 1,1,2-Trichloroethane | | | | | | | | |
| cis-1,2-Dichloropropene | | | | | | | | |
| 2-Chlorethylvinyl ether | | | | | | | | |
| Bromoform | 12.0 | | 9.0 | 133 | | | | |
| 1,1,2,2-Tetrachlorethane | | } 20.0 | 10.1 | | | | | |
| Tetrachlorethylene | | | 6.2 | | | | | |
| Chlorobenzene | 10.2 | | 8.2 | 125 | | | | |
| 1,3-Dichlorobenzene | | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

5 032

DUPLICATE ANALYSIS

| EPA METHOD 602 | | Sample ID: C-5 | |
|---------------------|-------|----------------|-----|
| VOLATILE ORGANICS | | | |
| SAMPLE # | | ECC1239-C5C | |
| UNITS | | mg/L | |
| COMPOUND | RUN#1 | RUN#2 | RPD |
| Benzene | ND | ND | NC |
| Toluene | | | |
| Ethyl benzene | | | |
| 1,4-Dichlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| O-Xylene | | | |
| M-Xylene | | | |
| P-Xylene | | | |
| Chlorobenzene | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD = Relative Percent Difference

DUPLICATE ANALYSIS

| EPA Method 601 Volatile Organics | | | | | | |
|-------------------------------------|-------|-------|-----|-------|-------|-----|
| COMPOUND | RUN#1 | RUN#2 | RPD | RUN#1 | RUN#2 | RPD |
| Chloromethane | ND | ND | NC | | | |
| Bromomethane | | | | | | |
| Vinyl chloride | | | | | | |
| Chloroethane | | | | | | |
| Methylene chloride | | | | | | |
| Trichlorofluoromethane | | | | | | |
| 1,1-Dichloroethene | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| trans-1,2-Dichloroethene | | | | | | |
| Chloroform | | | | | | |
| 1,2-Dichloroethane | | | | | | |
| 1,1,1-Trichloroethane | | | | | | |
| Carbon Tetrachloride | | | | | | |
| Bromodichloroemethane | | | | | | |
| 1,2-Dichloropropane | | | | | | |
| Trichloroethene | | | | | | |
| Dibromochloromethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| cis-1,2-Dichloropropene | | | | | | |
| 2-Chloroethylvinyl ether | | | | | | |
| Bromoform | | | | | | |
| 1,1,2,2-Tetrachlorethane | | | | | | |
| Tetrachlorethylene | | | | | | |
| Chlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD = Relative Percent Difference

Field Sample No. _____

Company Sampled/Address GENERAL DYNAMICS - FORT WORTH, PLANT 4
Sample Point Description Ground Water & Surface Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name NEIL ROBINSON Date/Time Sampled 1-29-86, 1-30-86

Amount of Sample Collected NINE 500 ml PLASTIC, THIRTY SIX 40 ml GLASS

Sample Description SURFACE WATER, GROUND WATER

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name RADIAN CORP.

Received By NEIL ROBINSON

Date Received 1-30-86

Time 1800

Transported By NEIL ROBINSON

Lab Sample No. 86-C-1-240

Comments Neil Robinson

Inclusive Dates of Possession 1-29-86, 1-30-86

Organization Name RAS

Received By Joe Timoney

Date Received 1-31-86

Time 1000

Transported By Joe Timoney

Lab Sample No. 8601239, 240

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____

Date Received _____

Time _____

Transported By _____

Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Form V

Q. C. Report No. 2

SPIKE SAMPLE RECOVERY

LAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

EPA Sample No.

Lab Sample ID No. 8601240-02AUnits ug/mlMatrix waterpredigest
Spik

| Compound | Control Limit %R | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | %R ¹ |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | " | | | | |
| 3. Arsenic | " | | | | |
| 4. Barium | " | 1.78 | .059 | 2.00 | 86 |
| 5. Beryllium | " | | | | |
| 6. Cadmium | " | .040 | .003* | .050 | 74 |
| 7. Calcium | " | | | | |
| 8. Chromium | " | .18 | .019* | .20 | 81 |
| 9. Cobalt | " | | | | |
| 10. Copper | " | | | | |
| 11. Iron | " | | | | |
| 12. Lead | " | | | | |
| 13. Magnesium | " | | | | |
| 14. Manganese | " | | | | |
| 15. Mercury | " | | | | |
| 16. Nickel | " | | | | |
| 17. Potassium | " | | | | |
| 18. Selenium | " | | | | |
| 19. Silver | " | .21 | .013 | .25 | 79 |
| 20. Sodium | " | | | | |
| 21. Thallium | " | | | | |
| 22. Tin | " | | | | |
| 23. Vanadium | " | | | | |
| 24. Zinc | " | | | | |
| Other: | | | | | |
| Cyanide | " | | | | |

$$^1 \%R = [(SSR - SR) / SA] \times 100$$

"R" - out of control

Comments: spike added to sample as it came in*value is less than
5x LCL

3 -

5 036

Form V

Q. C. Report No. 2

SPIKE SAMPLE RECOVERY

LAB NAME RadianAnalyticalCASE NO. PLANT 4

EPA Sample No. _____

Lab Sample ID No. 8601240-02ADATE 3-4-86Units ug/mlMatrix water

| Compound | Control Limit XR | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | TR ¹ |
|----------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | - | | | | |
| 3. Arsenic | - | | | | |
| 4. Barium | - | 1.04 | 0.59 | 1.00 | 98 |
| 5. Beryllium | - | | | | |
| 6. Cadmium | - | 0.98 | 0.003 * | 1.00 | 98 |
| 7. Calcium | - | | | | |
| 8. Chromium | - | 0.98 | 0.019 * | 1.00 | 96 |
| 9. Cobalt | - | | | | |
| 10. Copper | - | | | | |
| 11. Iron | - | | | | |
| 12. Lead | - | | | | |
| 13. Magnesium | - | | | | |
| 14. Manganese | - | | | | |
| 15. Mercury | - | | | | |
| 16. Nickel | - | | | | |
| 17. Potassium | - | | | | |
| 18. Selenium | - | | | | |
| 19. Silver | - | 1.00 | 0.013 | 1.00 | 99 |
| 20. Sodium | - | | | | |
| 21. Thallium | - | | | | |
| 22. Tin | - | | | | |
| 23. Vanadium | - | | | | |
| 24. Zinc | - | | | | |
| Other: | | | | | |
| Cyanide | - | | | | |

¹ TR = [(SSR - SR)/SA] x 100

*R - out of control

Comments: * this is less than 50%

8601240

Form III

Q. C. Report No. 8

BLANKS

2-10-86

LAB NAME RadianCASE NO. PLANT 4DATE 3-4-86UNITS ug/ml.Matrix water

| Preparation Compound | Initial Calibration | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|------------------------|------------------------|---|---|---|-------------------|---|
| | Blank Value | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | | | | | | 4.001 | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | | | | | | 4.002 | |
| 7. Calcium | | | | | | | |
| 8. Chromium | | | | | | 4.005 | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | | | | | | 4.002 | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

NO-A190 445

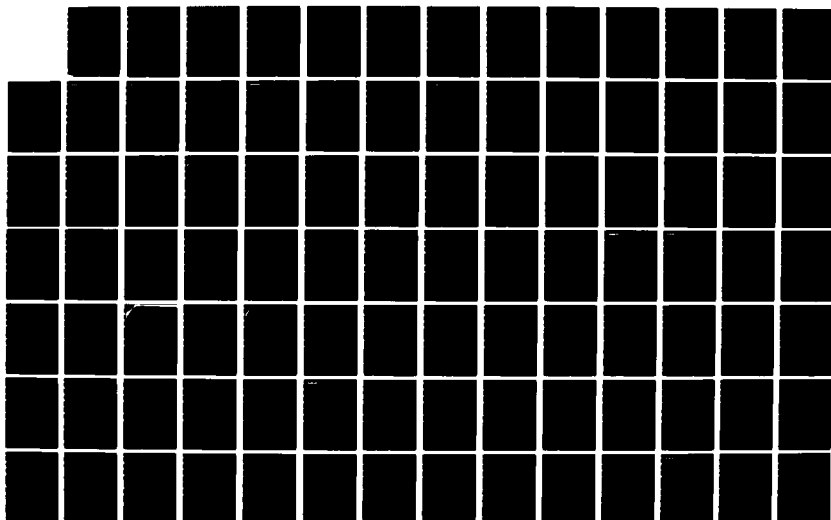
INSTALLATION RESTORATION PROGRAM PHASE 2
CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP
AUSTIN TX DEC 87 F33615-83-D-4001

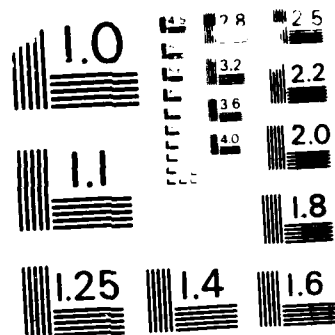
2/6

UNCLASSIFIED

F/G 24/7

NL





MICROCOPY RESOLUTION TEST CHART
 NATIONAL BUREAU OF STANDARDS - 1963-A

PLANT 4 86-01-240 samples 01-09 FOR W.O. 86-01-240 86-02-087 UNITS ug/ml
 86-02-031
 86-02-041

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|---------|---------------|-------------|------------|-----|--------------------|--------|--------|-----|------------------------------|--------|-------|-------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP1" | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R |
| As | 2/8/86 | .041 | .040 | 103 | an dup 01 A | <.005 | <.005 | NC | an sp 01 A | <.005 | .024 | .024 | 100 |
| | idl=.005 | .041 | .040 | 103 | | | | | | | | | prep bl <.005 |
| | | .040 | .040 | 100 | | | | | | | | | col bl <.005 |
| Hg | 2/3/86 | .0054 | .0050 | 108 | dig dup 09 A | <.0002 | .0003* | NC | dig sp 09 A | <.0002 | .0028 | .0020 | 140 |
| | idl=.0002 | .0040 | .0040 | 100 | | | | | | | | | prep bl ,0004* |
| | | | | | | | | | | | | | |
| Pb | 2-11/86 | .042 | .045 | 93 | an dup 09 A | <.002 | <.002 | NC | an sp 09 A | <.002 | .019 | .024 | 79 |
| | idl=.002 | .046 | .045 | 102 | | | | | | | | | col bl <.002 |
| | | | | | | | | | | | | | |
| Cd | 2/9/86 | .044 | .050 | 88 | an dup 05 A | <.003 | <.003 | NC | an sp 05 A | <.003 | .018 | .024 | 75 |
| | idl=.003 | .044 | .050 | 88 | | | | | an sp 05 1.10 dilution | <.003 | .022 | .024 | 92 |
| | | | | | | | | | | | | | prep bl <.003 |
| Hg | 8/8/86 | .0054 | .0050 | 108 | dig dup 03 A | <.0002 | <.0002 | NC | dig sp 04 A | <.0002 | .0024 | .0020 | 120 |
| | idl=.0002 | .0040 | .0040 | 100 | | | | | | | | | prep bl <.0002 |
| | | | | | | | | | | | | | |

an dup = analytical duplicate
 dig dup = digestion duplicate
 i.d.l. = instrument detection limit

an sp = analytical spike
 dig sp = digestion spike or matrix

* indicates value is less than 5x instrument detection limit
 NC = not calculable

UNITS ug/lal

PLANT 4 86-02-031 samples (0.1 - 0.3 0.3 0.6) - Oil Grease 02, 03 - METALS

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|----------------|-------|-------|-------|----|------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-19-86 | .039 | .040 | 98 | an dup 02 G | <.005 | <.005 | NC | an. sp 02 G | <.005 | .023 | .024 | 96 | prep bl <.005 |
| | idl = .005 | .040 | .040 | 100 | | | | | | | | | | cal bl <.005 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | — | | | | dig sp 03 G | <.002 | .0019 | .0020 | 95 | prep bl <.002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup 02 G | .033 | .030 | 9.4 | an. sp 02 G | .033 | .053 | .024 | 83 | prep bl <.002 |
| | idl = .002 | .045 | .045 | 100 | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | — | | | | an. sp 02 G | .003 | .021 | .024 | 75 | prep bl <.002 |
| | idl = .002 | .040 | .040 | 100 | | | | | | | | | | cal bl <.002 |
| Oil and Grease | 2-14-86 | 197 | 200 | 99 | — | | | | — | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| HC | 2-26-86 | 430 | 415 | 104 | | | | | | | | | | |
| | idl = 1 | 208 | 245 | 118 | | | | | | | | | | |

an. sp = analytical spike
dig sp = digest or matrix spike
idl = instrument detection limit

an dup = analytical duplicate
dig dup = digestion duplicate

* indicates value is less than 5x instrument detection limit

NC = not calculable

UNITS ug/Lml

PLANT 4 86-02-041 samples 01-06

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|--------|-------|--------------------------------|----------------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-19-86 | .039 | .040 | 98 | an dup 01 E | <.005 | <.005 | an sp 01 E | <.005 | .022 | .024 | 92 | prep bl <.005 |
| | IDL=.005 | .037 | .040 | 93 | | | | | | | | | cal bl <.005 |
| | | .035 | .040 | 88 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup 06 E | <.0002 | NC | dig sp 05 E | <.0002 | .0022 | .0020 | 110 | prep bl <.0002 |
| | IDL=.0002 | .0044 | .0040 | 110 | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup 01 E | <.0002 | NC | an sp 01 E 1:10 dilution | <.0002 | .021 | .024 | 88 | prep bl <.0002 |
| | IDL=.0002 | .045 | .045 | 100 | | | | | | | | | |
| | | .048 | .045 | 107 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | - | | | an sp 03 E | <.003 | .021 | .024 | 75 | prep bl <.002 |
| | IDL=.0002 | .039 | .040 | 98 | | | | | | | | | cal bl <.002 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| oil and grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | |
| | IDL=1 | 197 | 200 | 99 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| HC -IDL=1 | 2-14-86 | | | | an dup 03 | <1 | NC | | | | | | |

an sp = analytical spike
dig sp = digestion spike or matrix spike

an dup = analytical duplicate
dig dup = digestion duplicate

* indicates value is less than 5x instrument detection limit
NC = not calculable

UNITS ug/l

PLANT 4 86-02-060 samples 01-05

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|-------------------|---------------|-------------|------------|-----|--------------------|-----------|-----------|-----|---------------------------------|-----------|------|------|-----|------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-15-86 | .029 | .027 | 107 | dig dup DLC | * .002 | * .003 | 40 | dig sp 0.2 C | * .006 | .023 | .020 | 85 | prep bl ≤.002 |
| | idl = .002 | .042 | .040 | 105 | an. dup 0.3 C | * .006 | * .003 | 67 | an sp 0.5 A 1:10 dil | ≤.002 | .024 | .024 | 100 | cal bl ≤.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | 0.5 A | ≤.002 | .020 | .020 | 100 | prep bl ≤.002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | dig dup DLC | .034 | .031 | 9.1 | dig sp 0.2 C | .27 | .29 | .020 | 100 | prep bl ≤.002 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | | cal bl ≤.002 |
| Se | 2-17-86 | .042 | .040 | 105 | dig dup DLC | * .003 | * .002 | 40 | dig sp 0.2 C | ≤.002 | .005 | .010 | 50 | prep bl ≤.002 |
| | idl = .002 | .040 | .040 | 100 | | | | | an sp 0.5 A 1:10 dilution | ≤.002 | .023 | .024 | 96 | cal bl ≤.002 |
| oil and Grease | 2-14-86 | 197 | 200 | 99 | - | | | | - | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an sp = analytical spike
 dig sp = digestion or matrix spike
 idl = instrument detection limit
 an dup = analytical duplicate
 dig dup = digestion duplicate
 * indicates value is less than 5x instrument detection limit
 NC = not calculable

UNITS ug/lal

PLANT 4 86-02-067

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|-------------------|-------------------|----------------|----------------|------|------|-----|------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-15-86 | .029 | .027 | 107 | — | | | an sp 03 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .042 | .040 | 105 | | | | 1:10 dilution | | | | | cal bl <.002 |
| Hg | 2-24-86 | .0048 | .0050 | 96 | — | | | dig sp 04 E | <.002 | .020 | .020 | 100 | prep bl <.002 |
| | 2-20-86 | .0048 | .0050 | 96 | | | | | | | | | prep bl <.002 |
| | idl = .002 | .0044 | .0040 | 110 | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | an dup 04 E | .037 | .038 | 03 E | .020 | .035 | .024 | 63 | prep bl .004 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | cal bl <.002 |
| 045c | 2-17-86 | .042 | .040 | 105 | an dup 01 E | .007 ⁺ | .007 ⁺ | an sp 04 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .040 | .040 | | | | | 1:10 dilution | | | | | cal bl <.002 |
| Oil and Grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | |

idl = instrument detection limit

an sp = analytical spike

dig sp = digestion or matrix spike

dig = digestion duplicate
an dup = analytical duplicate* indicates value is less than 5x instrument detection limit
NC = not calculable

UNITS µg/lml

samples
2506, 07-046, HC

PLANT 4 86-03-079 sampled 01-04

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|--------------|---------------|-------------|------------|-----|--------------------|--------|------|-------------------|----------------|-------|-------|------|--------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | SR | |
| As | 2-21-86 | .043 | .040 | 105 | an dup | | | an sp | | | | | prep |
| | | | | | 01A | .010 | 9.5 | 01A | .011 | .038 | .024 | .113 | <.002 |
| | idl=.002 | .043 | .040 | 105 | dig dup | | 0 | 02A | .007 | .026 | .020 | .95 | cal bi |
| | | .042 | .040 | 105 | 01A | .011 | | | | | | | <.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup | | NC | dig sp | | | | | prep |
| | | | | | 01A | <.0002 | | 04A | <.0002 | .0021 | .0020 | .105 | <.0002 |
| | idl=.0002 | .0043 | .0040 | 105 | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | |
| Pb | 2-21-86 | .043 | .043 | 98 | dig dup | | 2.1 | dig sp | | | | | prep |
| | | | | | 01A | .048 | .047 | 02A | <.0002 | .009 | .020 | .45 | <.002 |
| | idl=.002 | .043 | .043 | 100 | | | | an sp | <.0002 | .011 | .024 | .46 | cal bi |
| | | | | | | | | an sp | <.0002 | .027 | .024 | .113 | <.002 |
| Se | 2-21-86 | .041 | .040 | 103 | dig dup | | NC | dig sp | | | | | prep |
| | | | | | 01A | <.0002 | | 02A | <.0002 | .003 | .010 | 0 | <.002 |
| | idl=.002 | .043 | .040 | 108 | | | | an sp | <.0002 | .016 | .024 | .67 | cal bi |
| | | | | | | | | an sp | <.0002 | .024 | .024 | .100 | <.002 |
| oil & Grease | 3-14-86 | 191 | 200 | 96 | | | | 04A 1:10 dilution | | | | | |
| | idl=1 | | | | | | | | | | | | |

an dup = analytical duplicate dig dup = pre-digest duplicate idl = instrument detection limit NC = NOT CALCULABLE
 an sp = analytical spike dig sp = pre-digest spike * = value is less than 5 x idl

For work 8601240
 orders 8602031
 8602041
 8602060
 8602067
 8602079
 8602087

Form VII

Q.C. Report No. 2

INSTRUMENT DETECTION LIMITS AND
 LABORATORY CONTROL SAMPLE

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

LCS UNITS ug/l mg/kg

ug/ml (Circle One)

| Compound | Required Detection Limits (CRDL)-ug/l | Instrument Detection | | Lab Control Sample | | |
|---------------|--|----------------------|--------|--------------------|------|-------|
| | | Limits (IDL)-ug/l | ICP/AA | Furnace* | True | Found |
| Metals: | | | | | | |
| 1. Aluminum | 200 | | | | | |
| 2. Antimony | 60 | | | | | |
| 3. Arsenic | 10 | | | | | |
| 4. Barium | 200 | <.001 | | | | |
| 5. Beryllium | 5 | | | | | |
| 6. Cadmium | 5 | <.002 | | | | |
| 7. Calcium | 5000 | | | | | |
| 8. Chromium | 10 | <.005 | | | | |
| 9. Cobalt | 50 | | | | | |
| 10. Copper | 25 | | | | | |
| 11. Iron | 100 | | | | | |
| 12. Lead | 5 | | | | | |
| 13. Magnesium | 5000 | | | | | |
| 14. Manganese | 15 | | | | | |
| 15. Mercury | 0.2 | | | | | |
| 16. Nickel | 40 | | | | | |
| 17. Potassium | 5000 | | | | | |
| 18. Selenium | 5 | | | | | |
| 19. Silver | 10 | <.002 | | | | |
| 20. Sodium | 5000 | | | | | |
| 21. Thallium | 10 | | | | | |
| 22. Tin | 40 | | | | | |
| 23. Vanadium | 50 | | | | | |
| 24. Zinc | 20 | | | | | |
| Other: | | | | | | |
| Cyanide | 10 | | | | | |

ICP QA/QC DATA

For work
orders

8601240
8602031
8602041
8602060
8602067
8602079
8602087

Form II

Q. C. Report No. 2INITIAL AND CONTINUING CALIBRATION VERIFICATION³LAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

SOW NO. _____

UNITS ug/ml

| Compound Metals: | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|---------------------|-----------------------------|-------|-----|-------------------------------------|-------|-----|-------|-----|---------------------|
| | True Value | Found | XR | True Value | Found | XR | Found | XR | |
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | 100 | 101 | 101 | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | 100 | 104 | 104 | 1.00 | 1.05 | 105 | 1.04 | 104 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | 100 | 101 | 101 | 1.00 | 1.02 | 102 | 1.02 | 102 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | 100 | 100 | 100 | 1.00 | 1.02 | 102 | 1.00 | 100 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____² Continuing Calibration Source _____³ Control Limits: Mercury and Tin: 80-120; All Other Compounds: 90-110⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form II

Q. C. Report No. 3

INITIAL AND CONTINUING CALIBRATION VERIFICATION³

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

SOW NO. _____

UNITS µg/ml

| Compound | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|---------------|-----------------------------|-------|----|-------------------------------------|-------|-----|-------|-----|---------------------|
| | True Value | Found | XR | True Value | Found | XR | Found | XR | |
| Metals: | | | | | | | | | |
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | | | | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | | | | 1.00 | 1.04 | 104 | 1.03 | 103 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | | | | 1.00 | 1.00 | 100 | 1.01 | 101 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | | | | 1.00 | 1.01 | 101 | 1.02 | 102 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____ ² Continuing Calibration Source _____

³ Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

8601240
8602031
8602041
8602060
8602067
8602079
8602087

Form III

Q. C. Report No. 2

BLANKS

LAB NAME Radium

CASE NO. PLANT 4

DATE 2-4-86

UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration Blank Value | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|---------------------------------------|------------------------|-------|-------|-------|-------------------|---|
| | | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | 2.001 | 2.001 | 2.001 | 2.001 | 2.001 | | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | 2.002 | 2.002 | 2.002 | .002* | .002* | | |
| 7. Calcium | | | | | | | |
| 8. Chromium | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | .006* | .018 | .010 | .009* | .014 | | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x idl

Form VI

Q. C. Report No. 2

DUPLICATES
 PRE DIGESTION
 DUPLICATE

LAB NAME RadianCASE NO. PLANT 4

EPA Sample No.

DATE 3-4-86Lab Sample ID No. 8601240 -01AUnits ug/mlMatrix water

digestion
 dup

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD- |
|---------------|----------------------------|-----------|--------------|------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | .053 | .051 | 3.8 |
| 5. Beryllium | | | | |
| 6. Cadmium | | 1.002 | .002* | NC |
| 7. Calcium | | | | |
| 8. Chromium | | .007* | .007* | 0 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | .011 | .010* | 9.5 |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

* Out of Control

To be added at a later date.

$$2 \text{ RPD} = [(S - D) / ((S + D) / 2)] \times 100$$

1 - Non calculable RPD due to value(s) less than GRDL

* value is less than 5% idl

Form VI

Q. C. Report No. 2DUPLICATES
ANALYTICALLAB NAME RadianDATE 3-4-86CASE NO. PLANT 4

EPA Sample No.

Lab Sample ID No. 86C124C-01AUnits ug/mlMatrix wateranalytical

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD- |
|---------------|----------------------------|-----------|--------------|------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | .053 | .053 | C |
| 5. Beryllium | | | | |
| 6. Cadmium | | <.002 | .003* | NL |
| 7. Calcium | | | | |
| 8. Chromium | | .007* | <.005 | NL |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | .011 | .012 | 8.7 |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

* Out of Control

To be added at a later date.

$$^2 \text{ RPD} = [(S - D) / ((S - D)^2)] \times 100$$

¹ - Non calculable RPD due to value(s) less than CRDL

* value is less than 5xidl

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address General Dynamics - Fort Worth Texas Plant 4
Sample Point Description Surface and ground water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name Neil Robinson Date/Time Sampled 1-29-86; 1-30-86

Amount of Sample Collected _____

Sample Description Surface & Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ - 10°C ☒ Other 7°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name RADIAN

Received By Neil Robinson Date Received 1-30-86 Time _____

Transported By Neil Robinson Lab Sample No. 86-01-34

Comments _____

Inclusive Dates of Possession 1-29-86 to 1-30-86

Organization Name Radian Analytical Services

Received By C. Rasmussen Date Received 1-31-86 Time 9:45

Transported By Federal Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address General Dynamics - Fort Worth, PLANT 4
Sample Point Description Surface Water ("C") and Well Water (P-7m)

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments (7) 1,000ml DK Glass Bottles (NR)

Collector's Name NEIL ROBINSON Date/Time Sampled 1-29-86; 1-30-86

Amount of Sample Collected (7) 1,000ml DK Glass Bottles

Sample Description Surface & Well Water

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 7°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RADIAN CORP

Received By Neil Robinson Date Received 1-30-86 Time 6pm

Transported By NEIL ROBINSON Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name Radian Analytical Services

Received By C. Rasmussen Date Received 1-31-86 Time 9:45

Transported By Federal Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address General Dynamics - Fort Worth Texas, Plant 4

Sample Point Description SURFACE AND WELL WATER

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name NEEL ROBINSON Date/Time Sampled 1-29-86; 1-30-86

Amount of Sample Collected ③ 1,000 ml DK Glass Bottles

Sample Description Surface & Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 7°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RADIAN

Received By NEEL ROBINSON Date Received 1-30-86 Time 6PM

Transported By Neel Robinson Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name Radian Analytical Services

Received By C. Radman Date Received 1-31-86 Time 0945

Transported By Federal Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

RADIAN
CORPORATION

AUSTIN, TEXAS

HYDROCARBONS - 860111, 860110
METALS - 860113, 860110, 860114, 860109, 860111, 860112
EPA 602 - 860109, 860110, 860111, 860112, 860113, 860114
EPA 601 - 860109, 860110, 860111, 860112, 860113, 860114
CHROMIUM - 860111, 860110
OIL & GREASE - 860111, 860110 Field Sample No. _____

CHAIN OF CUSTODY RECORD

Company Sampled/Address General Dynamics - Fort Worth, Plant 4
Sample Point Description Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name Neil Robinson, Art Morell Date/Time Sampled 1-31-86

Amount of Sample Collected _____ (MASON JARS)

Sample Description EIGHT 500 ml plastic, Four 1 liter glass, Twenty four 40 ml glass

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name Radian Corp.

Received By _____ Date Received _____ Time _____

Transported By Art Morell Lab Sample No. _____

Comments _____

Inclusive Dates of Possession 1-31-86

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Volatile Organics

DETECTION LIMITS

| EPA METHOD 601 | | METHOD DETECTION LIMIT ug/L | | | |
|--------------------------|--|--------------------------------------|---------|------|------|
| COMPOUND | | WORK ORDER #: 8402001 | | | |
| FRACTIONS: | | 01 & 06 | 02 & 03 | 05 | 04 |
| Chloromethane | | 2.0 | 0.08 | 0.80 | 4.0 |
| Bromomethane | | 2.9 | 1.18 | 1.2 | 5.8 |
| Vinyl Chloride | | 4.5 | 0.18 | 1.8 | 9.0 |
| Chloroethane | | 1.3 | 0.52 | 5.2 | 2.6 |
| Methylene Chloride | | 6.3 | 0.25 | 2.5 | 12.6 |
| Trichlorofluoromethane | | 2.5 | 0.10 | 1.0 | 5.0 |
| 1,1-Dichloroethene | | 3.3 | 0.13 | 1.3 | 6.6 |
| 1,1-Dichloroethane | | 1.8 | 0.07 | 0.70 | 3.6 |
| Trans-1,2-Dichloroethene | | 2.5 | 0.10 | 1.0 | 5.0 |
| Chloroform | | 1.3 | 0.05 | 0.50 | 2.6 |
| 1,2-Dichloroethane | | 0.75 | 0.03 | 0.30 | 1.5 |
| 1,1,1-Trichloroethane | | 0.75 | 0.03 | 0.30 | 1.5 |
| Carbon Tetrachloride | | 3.0 | 0.12 | 1.2 | 6.0 |
| Bromodichloromethane | | 2.5 | 0.10 | 1.0 | 5.0 |
| 1,2-Dichloropropane | | 1.0 | 0.04 | 4.0 | 2.0 |
| Trichloroethene | | 4.5 | 0.18 | 1.8 | 9.0 |
| Dibromochloromethane | | 2.3 | 0.09 | 9.0 | 4.6 |
| 2-Chloroethylvinyl Ether | | 3.3 | 0.13 | 1.3 | 6.6 |
| Bromoform | | 5.0 | 0.20 | 2.0 | 10.0 |
| Tetrachloroethene | | 0.75 | 0.03 | 0.3 | 1.5 |
| Chlorobenzene | | 6.3 | 0.25 | 2.5 | 12.6 |
| 1,3-Dichlorobenzene | | 8.0 | 0.32 | 3.2 | 16.0 |
| 1,2-Dichlorobenzene | | 3.4 | 0.13 | 1.5 | 6.8 |
| 1,4-Dichlorobenzene | | 6.0 | 0.24 | 2.4 | 12.0 |

EPA Method 602
Volatile Organics

WORK ORDER # 8602001

02-06

01

FRACTIONS:

Detection Limits

Method Detection Limit $\mu\text{g/L}$

Benzene

Toluene

Ethylbenzene

1,4-Dichlorobenzene

3-Dichlorbenzene

12-Dichlorobenzene

Chlorophenol

5 057

DUPLICATE ANALYSIS

| | | | | | | |
|-------------------------------------|--|-------|-----|-------|-------|-----|
| EPA Method 601 Volatile Organics | WORK ORDER - 8602001 FRACTION - 02A | | | | | |
| COMPOUND | RUN#1 | RUN#2 | RPD | RUN#1 | RUN#2 | RPD |
| Chloromethane | | | | | | |
| Bromomethane | | | | | | |
| Vinyl chloride | 1.58 | 1.46 | 7.9 | | | |
| Chloroethane | | | | | | |
| Methylene chloride | | | | | | |
| Trichlorofluoromethane | | | | | | |
| 1,1-Dichloroethene | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| trans-1,2-Dichloroethene | 10.9 | 10.4 | 2.8 | | | |
| Chloroform | | | | | | |
| 1,2-Dichloroethane | | | | | | |
| 1,1,1-Trichloroethane | | | | | | |
| Carbon Tetrachloride | | | | | | |
| Bromodichloroemethane | | | | | | |
| 1,2-Dichloropropane | | | | | | |
| Trichloroethene | 0.24 | 0.14 | 40 | | | |
| Dibromochloromethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| cis-1,2-Dichloropropene | | | | | | |
| 2-Chloroethylvinyl ether | | | | | | |
| Bromoform | | | | | | |
| 1,1,2,2-Tetrachlorethane | | | | | | |
| Tetrachlorethylene | | | | | | |
| Chlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD = Relative Percent Difference

5 058

DUPLICATE ANALYSIS

EPA METHOD 602

VOLATILE ORGANICS

SAMPLE # 8602001-03C

UNITS mg/L

| COMPOUND | RUN#1 | RUN#2 | RPD |
|---------------------|-------|-------|-----|
| Benzene | ND | ND | |
| Toluene | ND | ND | |
| Ethyl benzene | ND | ND | |
| 1,4-Dichlorobenzene | ND | ND | |
| 1,3-Dichlorobenzene | ND | ND | |
| 1,2-Dichlorobenzene | ND | ND | |
| O-Xylene | | | |
| M-Xylene | | | |
| P-Xylene | | | |
| Chlorobenzene | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD = Relative Percent Difference

SPIKE RECOVERY

EPA Method 602

Volatile Organics

1/10

2/4/21
NP
D

SAMPLE # 8602001-04C

UNITS Part 4
860112

| COMPOUND | SSR | SR | SA | ZR |
|---------------------|------|----|------|-----|
| Benzene | 39.1 | | 30.7 | 127 |
| Toluene | 7.5 | | 4.1 | 182 |
| Ethyl benzene | 16.2 | | 11.5 | 141 |
| 1,4-Dichlorobenzene | | | | |
| 1,3-Dichlorobenzene | | | | |
| 1,2-Dichlorobenzene | | | | |
| O-Xylene | 14.0 | | 10.6 | 133 |
| M-Xylene | 60.3 | | 42.6 | 142 |
| P-Xylene | 28.7 | | 19.1 | 150 |
| Chlorobenzene | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

SPIKE RECOVERY

| EPA METHOD 601 Volatile Organics | 7602001-06A PLANT 4 760114 5m 11.05 | | | | 2/10/81 AP G | | | |
|-------------------------------------|--|------|------|------------------|--------------------|----|----|----|
| COMPOUNDS | SSR | SR | SA | ZR | SSR | SR | SA | ZR |
| Chloromethane | | | | | | | | |
| Bromomethane | | | | | | | | |
| Vinyl chloride | | 8.57 | | | | | | |
| Chloroethane | | | | | | | | |
| Methylene chloride | 9.5 | | 9.2 | 104 | | | | |
| Trichlorofluoromethane | | | | | | | | |
| 1,1-Dichloroethene | 8.9 | | 10.0 | 89 | | | | |
| 1,1-Dichloroethane | | | | | | | | |
| trans-1,2-Dichloroethene | 5.7 | 160 | 5.4 | 105 ⁰ | | | | |
| Chloroform | 60.3 | | 43.0 | 140 | | | | |
| 1,2-Dichloroethane | 24.4 | | 27.6 | 89 | | | | |
| 1,1,1-Trichloroethane | 16.1 | | 14.3 | 113 | | | | |
| Carbon Tetrachloride | 22.4 | | 20.0 | 112 | | | | |
| Bromodichloroemethane | 8.9 | | 7.9 | 113 | | | | |
| 1,2-Dichloropropane | 8.3 | | 8.0 | 103 | | | | |
| Trichloroethene | 40.0 | 402 | 22.2 | 180 ⁰ | | | | |
| Dibromochloromethane | 11.4 | | 14.7 | 68 | | | | |
| 1,1,2-Trichloroethane | | | | | | | | |
| cis-1,2-Dichloropropene | | | | | | | | |
| 2-Chlorethylvinyl ether | | | | | | | | |
| Bromoform | 9.8 | | 9.9 | 99 | | | | |
| 1,1,2,2-Tetrachlorethane | | | 10.6 | | | | | |
| Tetrachlorethylene | | | 6.2 | | | | | |
| Chlorobenzene | 10.2 | | 9.2 | 104 | | | | |
| 1,3-Dichlorobenzene | | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | | |

① AREA COUNT OF SAMPLE ALONG SUBSTRATED OUT.

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

5 061

DAILY QUALITY CONTROL

EPA GC WP 483 conc 2 + EPA GC WP 781 conc 3

2/4/86

| | CERTIFIED VALUE (mg/L) | G ANALYZED VALUE | G DB 100 |
|---------------------------|------------------------------|------------------------|-------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 9.7 | 105 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 9.9 | 100 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 65.7 | 153 |
| 1,2-Dichloroethane | 27.6 | 26.0 | 94 |
| 1,1,1-Trichloroethane | 14.3 | 17.8 | 125 |
| Carbon tetrachloride | 20.0 | 22.5 | 113 |
| Bromodichloromethane | 7.9 | 9.4 | 118 |
| 1,2-Dichloropropane | 8.0 | 8.1 | 101 |
| Trichloroethene | 22.2 | 24.5 | 110 |
| Dibromochloromethane | 16.7 | 15.7 | 94 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 11.8 | 119 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 9.5 | 116 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA DC WP 483 conc 2 + EPA DC WP 781 conc 3

2/3/36

| | CERTIFIED VALUE (mg/L) | G ANALYZED VALUE | G % REC |
|---------------------------|------------------------------|------------------------|------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 10.5 | 114 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.0 | 80 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 55.0 | 128 |
| 1,2-Dichloroethane | 27.6 | 25.0 | 91 |
| 1,1,1-Trichloroethane | 14.3 | 14.9 | 104 |
| Carbon tetrachloride | 20.0 | 19.2 | 96 |
| Bromodichloromethane | 7.9 | 9.7 | 123 |
| 1,2-Dichloropropane | 8.0 | 9.4 | 117 |
| Trichloroethene | 22.2 | 24.9 | 112 |
| Dibromochloromethane | 16.7 | 16.2 | 97 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 9.2 | 93 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.9 | 109 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| DATE: 2/3/20 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|---|--|
| | | INSTRUMENT | | D | | | D | |
| | | ANALYST | | C | | | C | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 34.0 | | | 111 | | |
| | Toluene | 4.1 | 4.6 | | | 113 | | |
| | Ethylbenzene | 11.5 | 11.6 | | | 100 | | |
| | P-Xylene | 19.1 | 21.2 | | | 111 | | |
| | M-Xylene | 42.6 | 46.9 | | | 110 | | |
| | O-Xylene | 10.6 | 10.6 | | | 100 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

VOA RESULTS

| LAB # _____ | | SYSTO-BLANK | |
|---------------------------|----------------------|---------------------|----------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD | DATE: | EPA METHOD | DATE: |
| 601 | ANALYST: | 602 | 2/3/66 |
| | INSTRUMENT: | | ANALYST: JSL |
| | | | INSTRUMENT: 0.1 |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601

Bromochloromethane _____

2-Bromo-1-Chloropropane _____

1,4-Dichlorobutane _____

602

a,a,a,-Trifluorotoluene _____

VOA RESULTS

| | | | |
|---------------------------|----------------------------------|----------------------|---|
| LAB # | | <u>Norcent Blank</u> | |
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/3/81</u> ANALYST: <u>cp</u> INSTRUMENT: <u>Qel</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichlorethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601 Bromochloromethane _____
 2-Bromo-1-Chloropropane _____
 1,4-Dichlorobutane _____

602 a,a,a,-Trifluorotoluene _____

5 066

VOA RESULTS

| | | | |
|---------------------------|---|-------------------------|--|
| LAB # <u>SYSTEM BUNK</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| ===== | | ===== | |
| EPA METHOD 601 | DATE: <u>7/5/86</u> ANALYST: <u>ISC</u> INSTRUMENT: <u>Shimadzu</u> | EPA METHOD 602 | DATE: _____ ANALYST: _____ INSTRUMENT: _____ |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>ND</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichloroethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---|----------------------|---|----------------------|
| LAB # <u> </u> | | CLIENT NAME <u> </u> | |
| SAMPLE ID <u> </u> | | EPA METHOD <u> </u> | |
| EPA METHOD <u> </u> | | DATE: <u> </u> | |
| 601 | | ANALYST: <u> </u> | |
| INSTRUMENT: <u> </u> | | INSTRUMENT: <u> </u> | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | NP | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

[illegible]

VOA RESULTS

| LAB # _____ | | <u>PERCUT BUNK</u> | |
|----------------------------------|----------------------------------|----------------------------|---|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/7/86</u> ANALYST: <u>RP</u> INSTRUMENT: <u>#00</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| <u>Chloromethane</u> | | <u>Benzene</u> | <u>N2</u> |
| <u>Bromomethane</u> | | <u>Toluene</u> | |
| <u>Vinyl Chloride</u> | | <u>Ethyl benzene</u> | |
| <u>Chloroethane</u> | | <u>Chlorobenzene</u> | |
| <u>Methylene chloride</u> | | <u>1,4-Dichlorobenzene</u> | |
| <u>Trichlorofluoromethane</u> | | <u>1,3-Dichlorobenzene</u> | |
| <u>1,1-Dichlorethane</u> | | <u>1,2-Dichlorobenzene</u> | |
| <u>1,1-Dichloroethane</u> | | <u>P-Xylene</u> | |
| <u>Trans-1,2-Dichloroethene</u> | | <u>M-Xylene</u> | |
| <u>Chloroform</u> | | <u>O-Xylene</u> | |
| <u>1,2-Dichlorethane</u> | | | |
| <u>1,1,1-Trichlorethane</u> | | | |
| <u>Carbon tetrachloride</u> | | | |
| <u>Bromodichlormethane</u> | | | |
| <u>1,2-Dichloropropane</u> | | SURROGATE RECOVERIES: | |
| <u>Trans-1,3-Dichloropropene</u> | | 601 | |
| <u>Trichloroethene</u> | | Bromochloromethane | |
| <u>Dibromochloromethane</u> | | 2-Bromo-1-Chloropropane | |
| <u>1,1,2-Trichlorethane</u> | | 1,4-Dichlorobutane | |
| <u>cis-1,3-Dichloropropene</u> | | 602 | |
| <u>2-Chloroethylvinyl ether</u> | | a,a,a,-Trifluorotoluene | |
| <u>Bromoform</u> | | | |
| <u>1,1,2,2-Tetrachlorethane</u> | | | |
| <u>Tetrachlorethylene</u> | | | |
| <u>Chlorobenzene</u> | | | |
| <u>1,3-Dichlorobenzene</u> | | | |
| <u>1,2-Dichlorobenzene</u> | | | |
| <u>1,4-Dichlorobenzene</u> | | | |

VOA RESULTS

| LAB # <u>SYGON BLANK</u> | | | |
|---------------------------|---|-------------------------|----------------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: <u>2/4/86</u> ANALYST: <u>JSC</u> INSTRUMENT: <u>Shimadzu</u> | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>ND</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | SURROGATE RECOVERIES: | |
| 1,2-Dichloropropane | | 601 | |
| Trans-1,3-Dichloropropene | | Bromochloromethane | _____ |
| Trichloroethene | | 2-Bromo-1-Chloropropane | _____ |
| Dibromochloromethane | | 1,4-Dichlorobutane | _____ |
| 1,1,2-Trichloroethane | | 602 | |
| cis-1,3-Dichloropropene | | a,a,a,-Trifluorotoluene | _____ |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | 11-00000000000000000000 | |
|---------------------------|---|-------------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/4/82 ANALYST: R INSTRUMENT: Hewlett | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylnyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Surrogate Recoveries

Lab #: 8602001 -CIA

Sample ID: 860109

Date: 2/3/86

Instrument: G

601/801C

Bromochloromethane: 104 %

2-Bromo-1-Chloropropane: 112 %

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602001 - 02A

Sample ID: 860110

Date: 2/3/86

Instrument: G

601/8010

Bromochloromethane: 101/97%

2-Bromo-1-Chloropropane: 100/94%

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602001-03A

Sample ID: 86C11

Date: 2/3/86

Instrument: 6

601/8010

Bromochloromethane: 108%

2-Bromo-1-Chloropropane: 98%

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 86-02-001-04A

Sample ID: 860112

Date: 3/4/86

Instrument: 4

601/8010

Bromochloromethane: 114%

2-Bromo-1-Chloropropane: 151%

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602001 - C5A

Sample ID: 866113

Date: 2/4/86

Instrument: 4

601/8010

Bromochloromethane: 100%

2-Bromo-1-Chloropropane: 130%

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602001-06A

Sample ID: 860114

Date: 2/4/86

Instrument: 6

601/8010

Bromochloromethane: 103%

2-Bromo-1-Chloropropane: 111%

602/802

a,a,a-TriFluorotoluene:

Surrogate Recoveries

Lab #: 8602001 -01C

Sample ID: 860109

Date: 2/3/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: =

602/802

a,a,a-Trifluorotoluene: 94%

Surrogate Recoveries

Lab #: 8602001-02C

Sample ID: 860110

Date: 2/3/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: 77

602/802

a,a,a-Trifluorotoluene: 122%

Surrogate Recoveries

Lab #: 8602001-03C

Sample ID: 860111

Date: 2/4/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: =

602/802

a,a,a-Trifluorotoluene: 101/96%

Surrogate Recoveries

Lab #: 8602001 - otc

Sample ID: 860112

Date: 2/4/6

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: ==

602/802

a,a,a-Trifluorotoluene: 862

Surrogate Recoveries

Lab #: 8602001-050

Sample ID: 860113

Date: 2/4/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: 71

602/802

a,a,a-Trifluorotoluene: 91%

Surrogate Recoveries

Lab #: 8602-001-066

Sample ID: 860114

Date: 2/4/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: ==

602/802

a,a,a-Trifluorotoluene: 85%

Form VI

Q. C. Report No. 1

DUPLICATES

LAB NAME

BadianAnalytical

CASE NO.

Plant 4

DATE

2-27-86

EPA Sample No.

Lab Sample ID No. 8602001-01D

Units

ug/ml

Matrix

H₂O

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD- |
|---------------|----------------------------|-----------|--------------|------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | 0.10 | 0.10 | 9.5 |
| 5. Beryllium | | | | |
| 6. Cadmium | | 0.003* | <.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | 0.14 | 0.14 | 0 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | 0.005 * | 0.005 * | NC |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

* Out of Control

To be added at a later date.

$$^2 \text{ RPD} = \frac{|S - D|}{((S + D) / 2)} \times 100$$

1 - Non calculable RPD due to value(s) less than CRDL

* Value < 5 x 10L

Form VI

Q. C. Report No. 1 -

DUPLICATES

LAB NAME

RadianMatrix

CASE NO.

Matrix

DATE

2-27-86

EPA Sample No.

Lab Sample ID No. 8602001-050

Units

ug/ml

Matrix

H₂O

| Compound | Control Limit ¹ | Sample(S) | Duplicate D | RPD- |
|---------------|----------------------------|-----------|-------------|------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | 0.12 | 0.12 | 0 |
| 5. Beryllium | | | | |
| 6. Cadmium | | 0.003* | 0.003* | 0 |
| 7. Calcium | | | | |
| 8. Chromium | | 0.13 | 0.13 | 0 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | 0.02 | 0.02 | 0 |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

* Out of Control

To be added at a later date.

² RPD = [(S - D) / (S + D) / 2] x 100¹ - Non calculable RPD due to value(s) less than CRDL

* Value < 5 x IDL

B - 12

5 086

Form V

Q. C. Report No. 1

SPIKE SAMPLE RECOVERY

LAB NAME RadianMatrixCASE NO. Plant 4DATE 2-27-86EPA Sample No. Lab Sample ID No. 8602001-060Units µg/mlMatrix H₂O

| Compound | Control Limit ZR | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | ZR ¹ |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | - | | | | |
| 3. Arsenic | - | | | | |
| 4. Barium | - | 1.73 | 0.05 | 2.00 | 84 |
| 5. Beryllium | - | | | | |
| 6. Cadmium | - | 0.04 | 0.003* | 0.05 | 74 |
| 7. Calcium | - | | | | |
| 8. Chromium | - | 0.18 | 0.02* | 0.20 | 80 |
| 9. Cobalt | - | | | | |
| 10. Copper | - | | | | |
| 11. Iron | - | | | | |
| 12. Lead | - | | | | |
| 13. Magnesium | - | | | | |
| 14. Manganese | - | | | | |
| 15. Mercury | - | | | | |
| 16. Nickel | - | | | | |
| 17. Potassium | - | | | | |
| 18. Selenium | - | | | | |
| 19. Silver | - | 0.21 | 0.02 | 0.25 | 76 |
| 20. Sodium | - | | | | |
| 21. Thallium | - | | | | |
| 22. Tin | - | | | | |
| 23. Vanadium | - | | | | |
| 24. Zinc | - | | | | |
| Other: | | | | | |
| Cyanide | - | | | | |

¹ ZR = [(SSR - SR)/SA] x 100

"R" - out of control

Comments: * value < 5 x IDL

For samples: 86 02 001-01D -06D

UNITS $\mu\text{g}/\text{ml}$

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS | |
|---------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|----------------|-------|-------|-------|--------|-----------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | | %R |
| As | | 0.041 | 0.040 | 103 | * -01D | <.005 | <.005 | NC | * -01D | <.005 | .026 | .034 | 108 | (prep) <.005 |
| | | 0.044 | 0.040 | 103 | ** -05D | <.005 | <.005 | NC | ** -06D | <.005 | .017 | .020 | 85 | <.005 |
| | | 0.040 | 0.040 | 100 | | | | | | | | | | <.005 |
| | | | | | | | | | | | | | | |
| Pb | | 0.042 | 0.040 | 93 | ** -05D | .009 | .009 | NC | * -02D | <.002 | .019 | .034 | 71 | (prep) <.002 |
| | | 0.047 | 0.045 | 104 | | | | | 110 -02D | <.002 | .020 | .024 | 83 | <.002 |
| | | 0.045 | 0.045 | 100 | | | | | ** -06D | <.002 | .013 | .020 | 65 | <.002 |
| | | | | | | | | | | | | | | |
| Se | | 0.050 | 0.044 | 88 | ** -05D | <.003 | <.003 | NC | * -01D | <.003 | .015 | .034 | 63 | (prep) <.003 |
| | | 0.044 | 0.050 | 88 | | | | | 110 -01D | <.003 | .020 | .024 | 83 | <.003 |
| | | 0.046 | 0.050 | 92 | | | | | ** -06D | .016 | .211 | .25 | 78 | <.003 |
| | | 0.044 | 0.50 | 88 | | | | | | | | | | <.003 |
| Hg | 2-6-86 | 0.0004 | 0.0060 | 107 | -02D | <.002 | <.002 | NC | -01D | <.002 | .0022 | .0020 | 110 | <.002 |
| | | 0.0038 | 0.0040 | 95 | | | | | | | | | | |
| | | 0.0036 | 0.0040 | 90 | | | | | | | | | | |
| | | | | | | | | | | | | | | |

* Analytical (or post-digestion) spike or duplicate
 ** Matrix (pre-digestion) spike or duplicate

(A) Because of low recovery, sample was diluted 1:10 and re-spiked. The increased recovery indicates matrix interferences.

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address _____

Sample Point Description _____

Stream Characteristics:

Temperature _____

Flow _____

pH _____

Visual Observations/Comments _____

Collector's Name _____

Date/Time Sampled _____

Amount of Sample Collected _____

Sample Description _____

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other _____

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name _____

Received By _____

Date Received _____

Time _____

Transported By _____

Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____

Date Received _____

Time _____

Transported By _____

Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____

Date Received _____

Time _____

Transported By _____

Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

HM-2011 (broken = 2/9/86 - 86-0-10) (1 bottle broken)

RADIAN CORPORATION

EPA601: 860117
860115
860116

OIL & GREASE: 860116, 860117, 860115
Hydrocarbons 860117, 860116, 860115
CHROMIUM: 860117, 860116, 860115
CHAIN OF CUSTODY RECORD
METALS 860116, 860115, 860117

EF4002 860117
860115, 860116

Field Sample No. _____

Company Sampled/Address

Sample Point Description

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name Neil Robinson, Art Morrill Date/Time Sampled _____

Amount of Sample Collected Six Mason Jars, Six 500 ml Plastic, Twelve 40ml glass

Sample Description _____

Store at: ☐ Ambient ☐ 5°C ☐ - 10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name Radian Corp.

Received By _____ Date Received _____ Time _____

Transported By Art Morrill Lab Sample No. 86-02-015

Comments _____

Inclusive Dates of Possession 2-3-86

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Volatile Organics

DETECTION LIMITS

| EPA METHOD 601 | | METHOD DETECTION LIMIT ug/L | | |
|--------------------------|--|--------------------------------------|-----|------|
| COMPOUND | | FRACTION 01 02 03 | | |
| Chloromethane | | 0.08 | 8.0 | 0.08 |
| Bromomethane | | 1.18 | 118 | 1.18 |
| Vinyl Chloride | | 0.18 | 18 | 0.18 |
| Chloroethane | | 0.52 | 52 | 0.52 |
| Methylene Chloride | | 0.25 | 25 | 0.25 |
| Trichlorofluoromethane | | 0.10 | 10 | 0.10 |
| 1,1-Dichloroethene | | 0.13 | 13 | 0.13 |
| 1,1-Dichloroethane | | 0.07 | 7.0 | 0.07 |
| Trans-1,2-Dichloroethene | | 0.10 | 10 | 0.10 |
| Chloroform | | 0.05 | 5.0 | 0.05 |
| 1,2-Dichloroethane | | 0.03 | 3.0 | 0.03 |
| 1,1,1-Trichloroethane | | 0.03 | 3.0 | 0.03 |
| Carbon Tetrachloride | | 0.12 | 12 | 0.12 |
| Bromodichloromethane | | 0.10 | 10 | 0.10 |
| 1,2-Dichloropropane | | 0.04 | 4.0 | 0.04 |
| Trichloroethene | | 0.12 | 12 | 0.12 |
| Dibromochloromethane | | 0.09 | 9.0 | 0.09 |
| 2-Chloroethylvinyl Ether | | 0.13 | 13 | 0.13 |
| Bromoform | | 0.20 | 20 | 0.20 |
| Tetrachloroethene | | 0.03 | 3.0 | 0.03 |
| Chlorobenzene | | 0.25 | 25 | 0.25 |
| 1,3-Dichlorobenzene | | 0.32 | 32 | 0.32 |
| 1,2-Dichlorobenzene | | 0.15 | 15 | 0.15 |
| 1,4-Dichlorobenzene | | 0.24 | 24 | 0.24 |

EPA Method 602
Volatile Organics

FOR SAMPLES 8602015 -
01, 02, 03

| Detection Limits | |
|---------------------|--|
| Compound | Method Detection Limit $\mu\text{g/L}$ |
| Benzene | 0.2 |
| Toluene | 0.2 |
| Ethylbenzene | 0.2 |
| 1,4-Dichlorobenzene | 0.3 |
| 1,3-Dichlorobenzene | 0.4 |
| 1,2-Dichlorobenzene | 0.4 |
| Chlorobenzene | 0.2 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

DAILY QUALITY CONTROL

RAS GC LAB

| DATE: 2/5/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| | | INSTRUMENT | | D | | D | | |
| | | ANALYST | | G | | G | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 31.2 | | | 102 | | |
| | Toluene | 4.1 | 4.1 | | | 100 | | |
| | Ethylbenzene | 11.5 | 10.3 | | | 90 | | |
| | P-Xylene | 19.1 | 19.2 | | | 101 | | |
| | M-Xylene | 42.6 | 43.0 | | | 101 | | |
| | O-Xylene | 10.6 | 9.6 | | | 91 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/10/86

G/B

G/B

8.12

| | CERTIFIED VALUE (mg/L) | ANALYZED VALUE | |
|---------------------------|------------------------------|-------------------|-----------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 10.2 / 9.6 | 112 / 105 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 10.9 / 7.9 | 109 / 79 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 47.1 / 45.8 | 110 / 107 |
| 1,2-Dichloroethane | 27.6 | 42.9 / 22.3 | 156 / 81 |
| 1,1,1-Trichloroethane | 14.3 | 15.0 / 13.9 | 105 / 97 |
| Carbon tetrachloride | 22.0 | 21.2 / 17.1 | 106 / 85 |
| Bromodichloromethane | 7.9 | 9.2 / 7.9 | 116 / 100 |
| 1,2-Dichloropropane | 8.0 | 9.8 / 8.6 | 123 / 108 |
| Trichloroethene | 22.2 | 26.7 / 20.7 | 120 / 94 |
| Dibromochloromethane | 16.7 | 18.7 / 16.4 | 112 / 98 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 10.8 / 8.9 | 109 / 90 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 10.1 / 9.7 | 123 / 118 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---------------------------|-------------------------|----------------------------------|---|
| LAB # <u>157221</u> | | | |
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 DATE: 2/5/82 ANALYST: C INSTRUMENT: <u>Q</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | <u>ND</u> |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601

Bromochloromethane
2-Bromo-1-Chloroethane
1,4-Dichlorobenzene

602

VOA RESULTS

| LAB # | | CLIENT NAME | |
|---------------------------|----------------------------------|---------------------|---|
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/5/86 ANALYST: JSC INSTRUMENT: Qel |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichlorethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | <u>PACIFIC BUNK</u> | |
|----------------------------------|---|--------------------------------------|--------------------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: <u>2/11/82</u> ANALYST: <u>CP</u> INSTRUMENT: <u>Shimadzu</u> | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| <u>Chloromethane</u> | <u>N₂</u> | <u>Benzene</u> | |
| <u>Bromomethane</u> | | <u>Toluene</u> | |
| <u>Vinyl Chloride</u> | | <u>Ethyl benzene</u> | |
| <u>Chloroethane</u> | | <u>Chlorobenzene</u> | |
| <u>Methylene chloride</u> | | <u>1,4-Dichlorobenzene</u> | |
| <u>Trichlorofluoromethane</u> | | <u>1,3-Dichlorobenzene</u> | |
| <u>1,1-Dichlorethane</u> | | <u>1,2-Dichlorobenzene</u> | |
| <u>1,1-Dichloorethane</u> | | <u>P-Xylene</u> | |
| <u>Trans-1,2-Dichloroethene</u> | | <u>M-Xylene</u> | |
| <u>Chloroform</u> | | <u>O-Xylene</u> | |
| <u>1,2-Dichloorethane</u> | | | |
| <u>1,1,1-Trichloorethane</u> | | | |
| <u>Carbon tetrachloride</u> | | | |
| <u>Bromodichlormethane</u> | | | |
| <u>1,2-Dichloropropane</u> | | SURROGATE RECOVERIES: | |
| <u>Trans-1,3-Dichloropropene</u> | | 601 | |
| <u>Trichloroethene</u> | | | <u>Bromochloromethane</u> _____ |
| <u>Dibromochloromethane</u> | | | <u>2-Bromo-1-Chloropropane</u> _____ |
| <u>1,1,2-Trichloorethane</u> | | | <u>1,4-Dichlorobutane</u> _____ |
| <u>cis-1,3-Dichloropropene</u> | | 602 | |
| <u>2-Chloroethylvinyl ether</u> | | <u>a,a,a,-Trifluorotoluene</u> _____ | |
| <u>Bromoform</u> | | | |
| <u>1,1,2,2-Tetrachloorethane</u> | | | |
| <u>Tetrachloorethylene</u> | | | |
| <u>Chlorobenzene</u> | | | |
| <u>1,3-Dichlorobenzene</u> | | | |
| <u>1,2-Dichlorobenzene</u> | | | |
| <u>1,4-Dichlorobenzene</u> | | | |

VOA RESULTS

| EPA METHOD 601 | | DATE: 2/11/78 ANALYST: JSC INSTRUMENT: DuPont | |
|---------------------------|-------------------------|---|-------------------------|
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | NIP | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichlorethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601 Bromochloromethane _____
 2-Bromo-1-Chloropropane _____
 1,4-Dichlorobutane _____

602 a,a,a,-Trifluorotoluene _____

SPIKE RECOVERY

EPA Method 602

Volatile Organics

2/5/06
C
D

SAMPLE # 8602015-03C

UNITS Part Y 86047

Sm

| COMPOUND | SSR | SR | SA | ZR |
|---------------------|------|------|------|-----|
| Benzene | 33.0 | | 32.7 | 107 |
| Toluene | 5.81 | 1.44 | 4.1 | 107 |
| Ethyl benzene | 11.5 | | 11.5 | 100 |
| 1,4-Dichlorobenzene | | | | |
| 1,3-Dichlorobenzene | | | | |
| 1,2-Dichlorobenzene | | | | |
| O-Xylene | 10.5 | | 10.6 | 99 |
| M-Xylene | 45.7 | | 42.6 | 107 |
| P-Xylene | 20.9 | | 19.1 | 109 |
| Chlorobenzene | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

Surrogate Recoveries

Lab #: 8602015-01A

Sample ID: 860115

Date: 2/11/86

Instrument: 6

601/8010

Bromochloromethane: 96%

2-Bromo-1-Chloropropane: 117%

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602015-02A

Sample ID: 860116

Date: 2/11/86

Instrument: G

601/8010

Bromochloromethane: 88%

2-Bromo-1-Chloropropane: 71.8%

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602015-03A

Sample ID: 860117

Date: 2/11/86

Instrument: G

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: $\frac{100\%}{128\%}$

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602015 -01C

Sample ID: 860115

Date: 2/5/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: =

602/802

a,a,a-Trifluorotoluene: 98%

Surrogate Recoveries

Lab #: 8602015-02C

Sample ID: 860116

Date: 2/5/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: 77%

602/802

a,a,a-Trifluorotoluene: 85%

Surrogate Recoveries

Lab #: 8602015 - 03C

Sample ID: 860117

Date: 2/5/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: =

602/802

a,a,a-Trifluorotoluene: 95%

Analyzed with samples:
8/20/205 - 14, 15

8601205-14,15
8602001-02F,03F
8602015-01G→0
8602019-01A→05F

analysis date:
2-14-86

UNITS

49/mk

[illegible]

Form VI

Q. C. Report No. 1-

DUPLICATES

LAB NAME

Radiananalytical

CASE NO.

Plant 4

DATE

2-27-86

EPA Sample No.

Lab Sample ID No. 8602015-01E

Units

ug/ml

Matrix

H₂O

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD- |
|---------------|----------------------------|-----------|--------------|------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | 0.098 | 0.097 | 0.5 |
| 5. Beryllium | | | | |
| 6. Cadmium | | <.002 | <.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | 0.028 | 0.030 | 9.8 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | 0.011 | 0.012 | 6.3 |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| | | | | |
| Cyanide | | | | |

* Out of Control

To be added at a later date.

$$^2 \text{ RPD} = \frac{[S - D] \times (S + D) \times 100}{2}$$

¹ - Non calculable RPD due to value(s) less than CRDL

Form V

Q. C. Report No. 1-

SPIKE SAMPLE RECOVERY

LAB NAME

Radiananalytical

CASE NO.

EPA Sample No.

Lab Sample ID No. 8603015-03E

Units

ug/ml

DATE

8-27-86Matrix H₂O

| Compound | Control Limit ZR | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | ZR ¹ |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | - | | | | |
| 3. Arsenic | - | | | | |
| 4. Barium | - | 1.04 | 0.08 | 1.00 | 96 |
| 5. Beryllium | - | | | | |
| 6. Cadmium | - | 0.90 | <.002 | 1.00 | 90 |
| 7. Calcium | - | | | | |
| 8. Chromium | - | 0.95 | 0.02* | 1.00 | 93 |
| 9. Cobalt | - | | | | |
| 10. Copper | - | | | | |
| 11. Iron | - | | | | |
| 12. Lead | - | | | | |
| 13. Magnesium | - | | | | |
| 14. Manganese | - | | | | |
| 15. Mercury | - | | | | |
| 16. Nickel | - | | | | |
| 17. Potassium | - | | | | |
| 18. Selenium | - | | | | |
| 19. Silver | - | 0.96 | .008* | 1.00 | 95 |
| 20. Sodium | - | | | | |
| 21. Thallium | - | | | | |
| 22. Tin | - | | | | |
| 23. Vanadium | - | | | | |
| 24. Zinc | - | | | | |
| Other: | | | | | |
| Cyanide | - | | | | |

¹ ZR = [(SSR - SR)/SA] x 100

"R" - out of control

Comments: * Value < 5x IDL

For samples: 86 02 015 01E - 03E

UNITS

ug/gmt

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|---------|---------------|-------------|------------|-----|--------------------|--------|--------|-----|----------------|--------|-------|-------|-----|-----------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP # | SAMP | DUPL | RPD | SAMP # | SR | SSR | SA | %R | |
| As | | 0.041 | 0.040 | 103 | * -01E | 1.005 | 1.005 | NC | * -03E | 1.005 | .026 | .024 | 108 | (prep) 1.005 |
| | | 0.040 | 0.040 | 100 | | | | | | | | | | 1.005 |
| | | 0.040 | 0.040 | 100 | | | | | | | | | | 1.005 |
| Pb | | 0.042 | 0.045 | 93 | - | - | - | - | * -03E | 1.002 | .018 | .024 | 75 | (prep) 1.002 |
| | | 0.047 | 0.045 | 104 | | | | | 110 -03E | 1.002 | .021 | .024 | 88 | 1.002 |
| | | 0.045 | 0.045 | 100 | | | | | | | | | | 1.002 |
| | | | | | | | | | | | | | | 1.002 |
| | | | | | | | | | | | | | | 1.002 |
| Se | | 0.050 | 0.044 | 88 | | | | | * -01E | 1.005 | .026 | .024 | 108 | (prep) 1.003 |
| | | 0.044 | 0.050 | 88 | | | | | -03E | 1.003 | .013 | .024 | 54 | 1.003 |
| | | 0.046 | 0.050 | 92 | | | | | 110 -03E | 1.003 | .023 | .024 | 96 | 1.003 |
| | | 0.044 | 0.050 | 88 | | | | | | | | | | 1.003 |
| | | | | | | | | | | | | | | |
| Hg | 2.6.86 | 0.0064 | 0.0060 | 107 | -02E | 1.0002 | 1.0002 | NC | -03E | 1.0002 | .0015 | .0020 | 75 | (B) 1.0002 |
| | | 0.0038 | 0.0040 | 95 | | | | | | | | | | |
| | | 0.0036 | 0.0040 | 90 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

* Represents analytical (post-digestion) duplicate or spike
 ** Represents matrix (pre-digestion) duplicate or spike

(A) Because of low recovery, sample was diluted 1:10 and re-spiked. Increased recovery indicates sample matrix interference.
 (B) See rerun on 2-12-86

UNITS 49

5 110

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address General Dynamics, Fort Worth, Plant 4
Sample Point Description _____

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name Neil Robinson, Art Morrill Date/Time Sampled 1-30-86, 2-3-86

Amount of Sample Collected Six 1000 ml Amber Glass

Sample Description Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ - 10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name RADIAN CORP.

Received By _____ Date Received _____ Time _____

Transported By Arthur Morrill Lab Sample No. 860112-01

Comments _____

Inclusive Dates of Possession 1-30-86, 2-3-86

Organization Name EAS - SAC

Received By Wanda Brown Date Received 2/4/86 Time 9:15

Transported By Fed Ex 321175260 Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

RADIAN
CORPORATION

AUSTIN

OIL AND GREASE - 860123, 860120, 860121, 86049, 860118
HYDROCARBONS - 860123, 860120, 860121
METALS - 860121, 860120

CHAIN OF CUSTODY RECORD
Chromium - 860120

Field Sample No. _____

Company Sampled/Address General Dynamics - Fort Worth, Plant 4

Sample Point Description Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name Neil Robinson Art Morrill Date/Time Sampled 2-4-86

Amount of Sample Collected EIGHT MASON JARS, THREE 500 ml plastic

Sample Description _____

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name Radian Corp.

Received By Arthur Morrill Date Received _____ Time _____

Transported By Arthur Morrill Lab Sample No. 86-02-019

Comments _____

Inclusive Dates of Possession 2-4-86

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Volatile Organics

DETECTION LIMITS

| EPA METHOD 601 | | METHOD DETECTION LIMIT ug/L | | |
|--------------------------|------------|--------------------------------------|------|------|
| FOR WORK ORDER 86-02-019 | | | | |
| COMPOUND | FRACTIONS: | 03 | 04 | 05 |
| Chloromethane | | 0.08 | 80 | 0.08 |
| Bromomethane | | 1.18 | 1180 | 1.18 |
| Vinyl Chloride | | 0.18 | 180 | 0.18 |
| Chloroethane | | 0.52 | 520 | 0.52 |
| Methylene Chloride | | 0.25 | 250 | 0.25 |
| Trichlorofluoromethane | | 0.10 | 100 | 0.10 |
| 1,1-Dichloroethene | | 0.13 | 130 | 0.13 |
| 1,1-Dichloroethane | | 0.07 | 70 | 0.07 |
| Trans-1,2-Dichloroethene | | 0.10 | 100 | 0.10 |
| Chloroform | | 0.05 | 50 | 0.05 |
| 1,2-Dichloroethane | | 0.03 | 30 | 0.03 |
| 1,1,1-Trichloroethane | | 0.03 | 30 | 0.03 |
| Carbon Tetrachloride | | 0.12 | 120 | 0.12 |
| Bromodichloromethane | | 0.10 | 100 | 0.10 |
| 1,2-Dichloropropane | | 0.04 | 40 | 0.04 |
| Trichloroethene | | 0.18 | 180 | 0.18 |
| Dibromochloromethane | | 0.09 | 90 | 0.09 |
| 2-Chloroethylvinyl Ether | | 0.13 | 130 | 0.13 |
| Bromoform | | 0.20 | 20 | 0.20 |
| Tetrachloroethene | | 0.03 | 30 | 0.03 |
| Chlorobenzene | | 0.25 | 250 | 0.25 |
| 1,3-Dichlorobenzene | | 0.32 | 320 | 0.32 |
| 1,2-Dichlorobenzene | | 0.15 | 150 | 0.15 |
| 1,4-Dichlorobenzene | | 0.24 | 240 | 0.24 |

EPA method 602
Volatile Organics

For work order 86 02-019

FUNCTIONS Q3 105 04

Detection Limits

Compound

Benzene

Toluene

Ethylbenzene

1,4-Dichlorobenzene

1.3- Dichlorobenzene

1. 2-Dichlorobenzene

Chlorobenzene

5 114

| Method Detection Limit ug/L |
|-----------------------------|
|-----------------------------|

100

100

100

150

200

200

100

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/6/76

| | CERTIFIED VALUE (mg/L) | G ANALYZED VALUE | G % REC |
|---------------------------|------------------------------|------------------------|------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 10.1 | 110 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.0 | 80 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 67.1 | 156 |
| 1,2-Dichloroethane | 27.6 | 25.1 | 91 |
| 1,1,1-Trichloroethane | 14.3 | 13.5 | 95 |
| Carbon tetrachloride | 20.0 | 18.2 | 91 |
| Bromodichloromethane | 7.9 | 8.8 | 111 |
| 1,2-Dichloropropane | 8.0 | 8.0 | 100 |
| Trichloroethene | 22.2 | 23.5 | 106 |
| Dibromochloromethane | 16.7 | 13.5 | 81 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 9.8 | 99 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 9.7 | 119 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/5/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 31.2 | | | 102 | | |
| | Toluene | 4.1 | 4.1 | | | 100 | | |
| | Ethylbenzene | 11.5 | 10.3 | | | 90 | | |
| | P-Xylene | 19.1 | 19.2 | | | 101 | | |
| | M-Xylene | 42.6 | 43.0 | | | 101 | | |
| | O-Xylene | 10.6 | 9.6 | | | 91 | | |
| | | | | | | | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

VOA RESULTS

| LAB # | | SYSTEM BLANK | |
|---------------------------|--|-------------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/4/86 ANALYST: JSC INSTRUMENT: Shimadzu | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | 0.15 | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|----------------------------|--|-------------------------------|--|
| LAB # <u>1874</u> | | CLIENT NAME _____ | |
| SAMPLE ID _____ | | DATE: <u>2/6/82</u> | |
| EPA METHOD <u>601</u> | | ANALYST: <u>cy</u> | |
| INSTRUMENT <u>Fluorine</u> | | INSTRUMENT: _____ | |
| COMPOUND | | CONCENTRATION (ug/L) | |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene <u>218</u> | | SURROGATE RECOVERIES: | |
| Dibromochloromethane | | 601 | |
| 1,1,2-Trichloroethane | | Bromochloromethane _____ | |
| cis-1,3-Dichloropropene | | 2-Bromo-1-Chloropropane _____ | |
| 2-Chloroethylvinyl ether | | 1,4-Dichlorobutane _____ | |
| Bromoform | | 602 | |
| 1,1,2,2-Tetrachloroethane | | a,a,a,-Trifluorotoluene _____ | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # <u>6</u> <u>SYSTEM BLANK</u> | | | |
|------------------------------------|----------------------------------|-------------------------|---|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/5/86</u> ANALYST: <u>JSG</u> INSTRUMENT: <u>Dell</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | <u>NJ</u> |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichloroethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Surrogate Recoveries

Lab #: 8602019-03C

Sample ID: 860120

Date: 2/6/86

Instrument: G

601/8010

Bromochloromethane: 95%

2-Bromo-1-Chloropropane: 153%

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602019-04C

Sample ID: 86021

Date: 2/6/86

Instrument: 6

601/8010

Bromochloromethane: 99%

2-Bromo-1-Chloropropane: 729%

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602019-05C

Sample ID: 860123

Date: 2/6/86

Instrument: G

601/8010

Bromochloromethane:

101%

2-Bromo-1-Chloropropane:

98%

602/802

a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8602019-03E

Sample ID: 860120

Date: 2/5/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: ==

602/802

a,a,a-Trifluorotoluene: 103%

Surrogate Recoveries

Lab #: 8602019-04E

Sample ID: 860121

Date: 2/5/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane:

602/802

a,a,a-Trifluorotoluene: 97%

Surrogate Recoveries

Lab #: 8602019-05E

Sample ID: 860123

Date: 2/5/86

Instrument: D

601/8010

Bromochloromethane:

2-Bromo-1-Chloropropane: =

602/802

a,a,a-Trifluorotoluene: 96%

Form V

Q. C. Report No. 1-

SPIKE SAMPLE RECOVERY

LAB NAME RadianAnalyticalCASE NO. Plant 4DATE 2-27-80

EPA Sample No.

Lab Sample ID No. 8602019-046Units µg/mlMatrix H₂O

| Compound | Control Limit ZR | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | ZR ¹ |
|----------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | - | | | | |
| 3. Arsenic | - | | | | |
| 4. Barium | - | 0.99 | 0.13 x | 1.00 | 86 |
| 5. Beryllium | - | | | | |
| 6. Cadmium | - | 0.90 | 5.002 | 1.00 | 90 |
| 7. Calcium | - | | | | |
| 8. Chromium | - | 1.26 | 0.33 | 1.00 | 93 |
| 9. Cobalt | - | | | | |
| 10. Copper | - | | | | |
| 11. Iron | - | | | | |
| 12. Lead | - | | | | |
| 13. Magnesium | - | | | | |
| 14. Manganese | - | | | | |
| 15. Mercury | - | | | | |
| 16. Nickel | - | | | | |
| 17. Potassium | - | | | | |
| 18. Selenium | - | | | | |
| 19. Silver | - | 0.99 | 0.012 | 1.00 | 98 |
| 20. Sodium | - | | | | |
| 21. Thallium | - | | | | |
| 22. Tin | - | | | | |
| 23. Vanadium | - | | | | |
| 24. Zinc | - | | | | |
| Other: | | | | | |
| Cyanide | - | | | | |

¹ ZR = [(SSR - SR)/SA] x 100

"R"- out of control

Comments:

Form VI

Q. C. Report No. L-

DUPLICATES

LAB NAME

RadianMatrix

CASE NO.

Plant 4

EPA Sample No.

Lab Sample ID No. 8602019-036

DATE

2-27-86

Units

ug/lMatrix H₂O

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD ² |
|---------------|----------------------------|-----------|--------------|------------------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | 0.08 | 0.08 | 0 |
| 5. Beryllium | | | | |
| 6. Cadmium | | <.002 | <.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | 0.006 * | 0.006 * | 0 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | 0.007 * | 0.007 * | 0 |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

* Out of Control

To be added at a later date.

$$^2 \text{ RPD} = [(S - D) / ((S + D) / 2)] \times 100$$

1 - Non calculable RPD due to value(s) less than CRDL

* Value < 5 x IDL

For samples : 86 02 019-03G
-04G

UNITS

ug/ml

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS (ppm) |
|---------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|----------------|--------|-------|-------|-----|-----------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| Pb | 2-17-86 | 0.045 | 0.044 | 98 | 03G* | <.002 | <.002 | NC | 03G* | <.002 | .018 | .024 | 75 | <.002 |
| | | 0.045 | 0.050 | 111 | 03G** | <.002 | <.002 | NC | 04G | .004 | .021 | .020 | 85 | |
| | | 0.045 | 0.045 | 100 | | | | | | | | | | |
| As | 2-17-86 | 0.039 | 0.040 | 98 | 03G* | <.005 | <.005 | NC | 03G* | <.005 | .023 | .024 | 96 | <.005 |
| | | 0.040 | 0.040 | 100 | 03G** | <.005 | <.005 | NC | 04G | <.005 | .019 | .020 | 95 | |
| | | 0.037 | 0.040 | 93 | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 129 | 2-17-86 | 0.042 | 0.040 | 105 | 03G** | <.003 | <.003 | NC | 04G* | <.003 | .016 | .024 | 67 | <.003 |
| | | 0.040 | 0.040 | 100 | | | | | 04G#1 | <.003 | .021 | .024 | 88 | |
| | | 0.039 | 0.040 | 98 | | | | | 04G** | <.003 | .0054 | .010 | 54 | |
| | | | | | | | | | | | | | | |
| Hg | 2-16-86 | 0.00164 | 0.00400 | 107 | | | | | 03G | <.0042 | .0026 | .0020 | 123 | <.0002 |
| | | 0.0038 | 0.0040 | 95 | | | | | | | | | | |
| | | 0.00310 | 0.0040 | 90 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

* Represents analytical or post-digestion duplication or spiking

** Represents matrix or pre-digestion duplication or spiking

1 Sample was diluted 1:10 and re-spiked.

2. See rerun on 2-12-86

UNITS 45/ml

5 130

RADIAN
CORPORATION

SACRAMENTO

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address Air Force Plant 4 Fort Worth Texas

Sample Point Description Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name NEIL ROBINSON Date/Time Sampled 2-5-86 AND 2-4-86

Amount of Sample Collected ⑦ 1,000 ml JK Glass Bottles

Sample Description Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 40C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RADIAN

Received By Neil Robinson Date Received _____ Time _____

Transported By Neil Robinson Lab Sample No. 86-02-030

Comments _____

Inclusive Dates of Possession 2-4-86 → 2-5-86

Organization Name Radian Analytical Services

Received By Chris Kammiller Date Received 2-6-86 Time 10:00

Transported By Federal Lab Sample No. 8602030

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Two Field Blanks (at HM74)

RADIAN
CORPORATION

ONE TRIP BLANK AUSTIN

METALS 860125, 860124 CHROMIUM 860124, 860125
EPA 601 860129, 860127, 860124, 860125
EPA 602 860129, 860127, 860124, 860125

CHAIN OF CUSTODY RECORD
XYLENE 860124 METHYLETHYLKETONE 860124

Field Sample No. _____

Company Sampled/Address Air Force Plant 4 Fort Worth TEXAS

Sample Point Description GROUND WATER

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name NEIL ROBINSON Date/Time Sampled 2-5-86

Amount of Sample Collected TWENTY 40ML VIALS AND FOUR 500ml PLASTIC BOTTLES

Sample Description TWO FIELD BLANKS; ONE TRIP BLANK

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name RADIAN

Received By _____ Date Received _____ Time _____

Transported By Neil Robinson Lab Sample No. 860124

Comments _____

Inclusive Dates of Possession 2-5-86

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

1

| UNIT | DATE | DESCRIPTION | AMOUNT | CHECK NO. | REMARKS |
|-----------|-----------|-------------|--------|-----------|---------|
| 86-02-001 | 86-01-240 | FOR W.O. | | | |
| 86-02-001 | 86-03-031 | FOR W.O. | | | |

2-08 /
UNITS 11/20/1

PLANT 4 86-01-240 sample 01-09

[illegible]

an dup = analytical duplicate
 dig dup = digestion duplicate
 i.d.l. = instrument detection limit
 on sp = analytical spike
 dig sp = digestion spike or matrix
 * indicates value is less than 5x instrument detection limit
 NC = not calculable

UNITS ug/gal

PLANT 4 86-02-031 samples (01, 03, 03, 06) - OIL & GREASE 03, 03 - METALS

| ELEMENT | ANALYSIS DATE | QC DATA | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|---------|---------------|-------------|------------|--------------------|----------------|-------|-----|----------------|-------|-------|-------|----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-19-86 | .039 | .040 | 98 | an dup 02 G | <.005 | NC | an. sp 02 G | .005 | .023 | .024 | 96 | prep bl <.005 |
| | 10/1 = .005 | .040 | .040 | 100 | | | | | | | | | cal bl <.005 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | — | | | dig sp 03 G | .0002 | .0019 | .0020 | 95 | prep bl <.0002 |
| | 10/1 = .0002 | .0042 | .0040 | 105 | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | |
| | 2-12-86 | .044 | .045 | 98 | an dup 02 G | .030 | 9.4 | an. sp 02 G | .033 | .053 | .024 | 83 | prep bl <.002 |
| | 10/1 = .002 | .045 | .045 | 100 | | | | | | | | | |
| | 2-12-86 | .042 | .040 | 105 | — | | | an. sp 02 G | .003 | .021 | .024 | 75 | prep bl <.002 |
| | 10/1 = .002 | .040 | .040 | 100 | | | | | | | | | cal bl <.002 |
| | | .039 | .040 | 98 | | | | | | | | | |
| | | .02 | .200 | 99 | — | | | | | | | | |
| | | .02 | .200 | 99 | | | | | | | | | |
| | | .02 | .415 | 104 | | | | | | | | | |
| | | .02 | .245 | 118 | | | | | | | | | |

an. dup = analytical duplicate
an. sp = digestion duplicate

* indicates value is less than 5x instrument detection limit

NC = not calculable

AD-A190 443

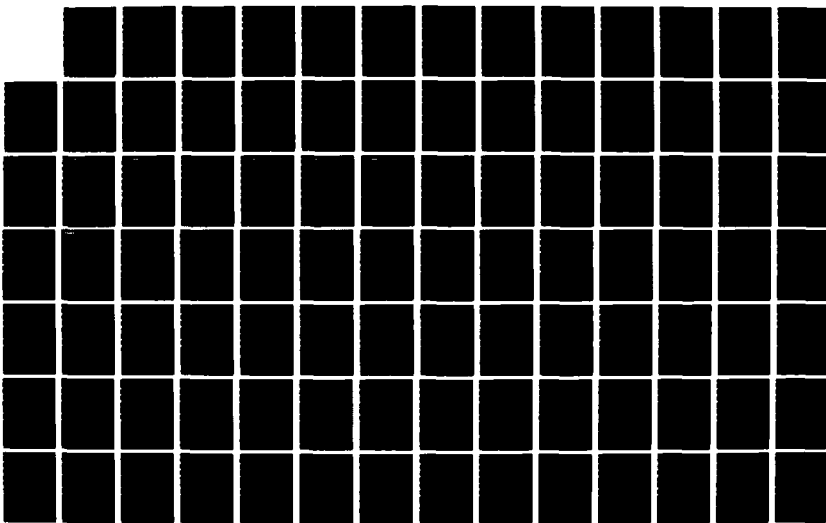
INSTALLATION RESTORATION PROGRAM PHASE 2
CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP
AUSTIN TX DEC 87 F33615-83-D-4881

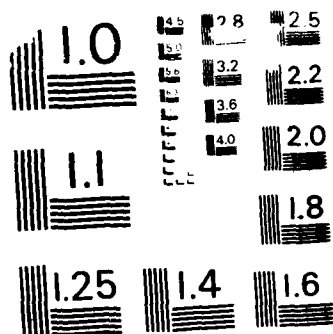
3/6

UNCLASSIFIED

F/G 24/7

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

UNITS ug/lml

PLANT 4 86-02-041 samples 01-06

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|--------|-----|---------------|----------------|-------|-------|-----|------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-19-86 | .039 | .040 | 98 | an dup 01 E | <.005 | NC | an sp 01 E | <.005 | .022 | .024 | 93 | prepbl <.005 |
| | idl=.005 | .037 | .040 | 93 | | | | | | | | | cal bl <.005 |
| | | .035 | .040 | 88 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | an dup 06 E | <.0002 | NC | an sp 05 E | <.0002 | .0022 | .0020 | 110 | prepbl <.0002 |
| | idl=.0002 | .0044 | .0040 | 110 | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup 01 E | <.0002 | NC | an sp 01 E | <.0002 | .021 | .024 | 88 | prepbl <.0002 |
| | idl=.002 | .045 | .045 | 100 | | | | | | | | | |
| | | .048 | .045 | 107 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Sc | 2-17-86 | .042 | .040 | 105 | | | | an sp 03 E | <.003 | .021 | .024 | 75 | prepbl <.002 |
| | idl=.002 | .039 | .040 | 98 | | | | | | | | | cal bl <.002 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| oil and grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | |
| | idl=1 | 197 | 200 | 99 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| HC -idl=1 | 2-14-86 | | | | an dup 03 | <1 | NC | | | | | | |

an dup

<1

NC

idl=instrument det limit

* indicates value is less than 5x instrument detection limit

NC = not calculable

an sp = analytical spike
dig sp = digestion spike or matrix spike

an dup = analytical duplicate
dig dup = digestion duplicate

UNITS

ug/lb

PLANT 4 86-02-060 samples 01-05

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|-------------------------------|-------|------|------|--------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP ¹ | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R |
| As | 2-15-86 | .029 | .027 | 107 | dig dup 01C | .002* | .003* | 40 | dig sp 02C | .006* | .023 | .020 | 85 |
| | idl = .002 | .042 | .040 | 105 | an. dup 03C | .006* | .003* | 67 | 05A 1:10 dil | <.002 | .024 | .024 | 100 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | 05A | <.002 | .020 | .020 | 100 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | dig dup 01C | .034 | .031 | 91 | dig sp 02C | .27 | .29 | .020 | 100 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | dig dup 01C | .003* | .002* | 40 | dig sp 02C | .002 | .005 | .010 | 50 |
| | idl = .002 | .040 | .040 | 100 | | | | | an sp 05A 1:10 dilution | <.002 | .023 | .024 | 96 |
| Oil and Grease | 2-14-86 | 197 | 200 | 99 | - | | | | - | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

an sp = analytical spike
dig sp = digestion or matrix spike
idl = instrument detection limit

an dup = analytical duplicate
dig dup = digestion duplicate

* indicates value is less than
5x instrument detection limit
NC = not calculable

UNITS ug/gal

PLANT 4 86-02-067

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS | |
|----------------|---------------|-------------|------------|-----|--------------------|------|------|-----|----------------|--------|-------|-------|--------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | | %R |
| As | 2-15-86 | .029 | .027 | 107 | — | | | | an sp 03 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .042 | .040 | 105 | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Hg | 2-24-86 | .0048 | .0050 | 96 | — | | | | dq sp 04 E | <.0002 | .0020 | .0020 | 100 | prep bl <.0002 |
| | 2-20-86 | .0048 | .0050 | 96 | | | | | | | | | | prep bl <.0002 |
| | idl = .0002 | .0044 | .0040 | 110 | | | | | | | | | | |
| 5 Pb | | .0044 | .0040 | 110 | | | | | | | | | | |
| | 2-17-86 | .045 | .043 | 105 | an dup 04 E | .037 | .038 | 2.7 | an sp 03 E | .020 | .035 | .024 | 63 | prep bl <.004 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | | cal bl <.002 |
| 5c | 2-17-86 | .042 | .040 | 105 | an dup 01 E | .007 | .007 | 0 | an sp 04 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .040 | .040 | | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Oil and Grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| | | | | | | | | | | | | | | |

idl = instrument
detection
limit

an sp = analytical spike

dq sp = digestion or matrix spike

an dup

an dup = analytical duplicate

dq = digestion duplicate

* indicates value is less
than 5x instrument detection
limit
NC = not calculable

UNITS µg/galPLANT 4 86-02-079 sampled 01 - 04 samples 050607-04G, HC

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|--------------|---------------|-------------|------------|-----|--------------------|--------|--------|-----|-------------------------------|--------|-------|-------|-----|------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP!" | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-21-86 | .043 | .040 | 105 | an.dup 01A | .011 | .010 | 9.5 | an.sp 01A | .011 | .038 | .024 | 113 | prepbl <.002 |
| | idl=.002 | .043 | .040 | 105 | dig dup 01A | .011 | .011 | 0 | dig dup 02A | .007 | .026 | .020 | 95 | cal bl <.002 |
| | | .042 | .040 | 105 | | | | | | | | | | <.002 |
| | | | | | | | | | | | | | | <.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup 01A | <.0002 | <.0002 | NC | dig sp 04A | <.0002 | .0021 | .0020 | 105 | prepbl <.0002 |
| | idl=.0002 | .0043 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Pb | 2-21-86 | .042 | .043 | 98 | dig dup 01A | .048 | .047 | 2.1 | dig sp 02A | <.0002 | .009 | .020 | 45 | prepbl <.002 |
| | idl=.002 | .043 | .043 | 100 | | | | | an.sp 04A | <.0002 | .011 | .024 | 46 | cal bl <.002 |
| | | | | | | | | | an.sp 04A | <.0002 | .027 | .024 | 113 | cal bl <.002 |
| | | | | | | | | | 110 dilution | | | | | |
| Se | 2-21-86 | .041 | .040 | 103 | dig dup 01A | <.0002 | <.0002 | NC | dig sp 02A | <.0002 | .003 | .010 | 0 | prepbl <.002 |
| | idl=.002 | .043 | .040 | 108 | | | | | an.sp 04A | <.0002 | .016 | .024 | 67 | cal bl <.002 |
| | | | | | | | | | an.sp 04A 1:10 dilution | <.0002 | .024 | .024 | 100 | |
| | | | | | | | | | | | | | | |
| oil & Grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | idl= 1 | | | | | | | | | | | | | |

an dup = analytical duplicate dig dup = pre-digest duplicate idl = instrument detection limit NC = NOT CALCULABLE
 an sp = analytical spike dig sp = pre-digest spike * = value is less than 5 x idl

PLANT 4 86-02-087 samples 04 05 (metals) 01,02(000) 01,02,03(ME) UNITS $\mu\text{g/g}$ metal

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|------|------|-----|------------------------|-------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-24-86 | .036 | .040 | 90 | an dup 04A | .038 | .038 | 0 | an sp 05A | <.002 | .024 | .024 | 100 | prep bl <.002 |
| | idl=.002 | .036 | .040 | 90 | | | | | | | | | | cal bl <.002 |
| | | .037 | .040 | 93 | - | | | | | | | | | cal bl <.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | dig sp 05A | <.002 | .0019 | .0020 | 95 | prep bl <.002 |
| | idl=.002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-21-86 | .042 | .043 | 98 | - | | | | an sp 05A | <.002 | .017 | .024 | 71 | prep bl <.002* |
| | idl=.002 | .043 | .043 | 100 | | | | | an sp 05A 1:100 dil | <.002 | .024 | .024 | 100 | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Se | 2-21-86 | .041 | .040 | 103 | | | | | an sp 04A | <.002 | .015 | .024 | 63 | prep bl <.002 |
| | idl=.002 | .043 | .040 | 108 | | | | | an sp 04A dilution | <.002 | .023 | .024 | 96 | cal bl <.002 |
| | | | | | | | | | | | | | | |
| oil and grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | idl=1 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an dup=analytical duplicate an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike
idl = instrument detection limit *=value is less than five times the instrument detection limit NC=not calculable

* detection limits are given on ³⁻¹³ Furnace/Hg/046 PA/PC SUMMARY SHEETS

ICP QA / PC DATA

For work
orders
 8601240
 8602031
 8602041
 8602060
 8602067
 8602079
 8602087

Form II

Q. C. Report No. 2INITIAL AND CONTINUING CALIBRATION VERIFICATION³LAB NAME RadiumCASE NO. PLANT 4DATE 3-4-86

SOW NO. _____

UNITS ug/ml

| Compound | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|---------------|-----------------------------|-------|-----|-------------------------------------|-------|-----|-------|-----|---------------------|
| | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| Metals: | | | | | | | | | |
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | 100 | 101 | 101 | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | 100 | 104 | 104 | 1.00 | 1.05 | 105 | 1.04 | 104 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | 100 | 101 | 101 | 1.00 | 1.02 | 102 | 1.02 | 102 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | 100 | 100 | 100 | 1.00 | 1.02 | 102 | 1.00 | 100 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____² Continuing Calibration Source _____³ Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form II

Q. C. Report No. 3

INITIAL AND CONTINUING CALIBRATION VERIFICATION³

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

SOW NO. _____

UNITS µg/ml

| Compound | | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|----------|-----------|-----------------------------|-------|----|-------------------------------------|-------|-----|-------|-----|---------------------|
| Metals: | | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| 1. | Aluminum | | | | | | | | | |
| 2. | Antimony | | | | | | | | | |
| 3. | Arsenic | | | | | | | | | |
| 4. | Barium | | | | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. | Beryllium | | | | | | | | | |
| 6. | Cadmium | | | | 1.00 | 1.04 | 104 | 1.03 | 103 | |
| 7. | Calcium | | | | | | | | | |
| 8. | Chromium | | | | 1.00 | 1.00 | 100 | 1.01 | 101 | |
| 9. | Cobalt | | | | | | | | | |
| 10. | Copper | | | | | | | | | |
| 11. | Iron | | | | | | | | | |
| 12. | Lead | | | | | | | | | |
| 13. | Magnesium | | | | | | | | | |
| 14. | Manganese | | | | | | | | | |
| 15. | Mercury | | | | | | | | | |
| 16. | Nickel | | | | | | | | | |
| 17. | Potassium | | | | | | | | | |
| 18. | Selenium | | | | | | | | | |
| 19. | Silver | | | | 1.00 | 1.01 | 101 | 1.02 | 102 | |
| 20. | Sodium | | | | | | | | | |
| 21. | Thallium | | | | | | | | | |
| 22. | Tin | | | | | | | | | |
| 23. | Vanadium | | | | | | | | | |
| 24. | Zinc | | | | | | | | | |
| Other: | | | | | | | | | | |
| Cyanide | | | | | | | | | | |

¹ Initial Calibration Source _____ ² Continuing Calibration Source _____

³ Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

8601240
8602031
8602041
8602060
8602067
8602079
8602087

Form III
Q. C. Report No. 2
BLANKS

LAB NAME Radian
DATE 2-4-86

CASE NO. PLANT 4
UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|------------------------|------------------------|-------|-------|-------|-------------------|---|
| | Blank Value | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | 1.001 | 1.001 | 1.001 | 1.001 | 1.001 | | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | 1.002 | 1.002 | 1.002 | .002* | .002* | | |
| 7. Calcium | | | | | | | |
| 8. Chromium | 1.005 | 1.005 | 1.005 | 1.005 | 1.005 | | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | .006* | .018 | .010 | .004* | .014 | | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x idl

86-02031
86-02041

Form III

Q. C. Report No. 8

BLANKS

2-11-86

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|------------------------|------------------------|-------------|-------------|-------------|-------------------|---|
| | Blank Value | Blank Value | Blank Value | Blank Value | Blank Value | 1 | 2 |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | | | | | | .004* | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | | | | | | 1.002 | |
| 7. Calcium | | | | | | | |
| 8. Chromium | | | | | | 1.005 | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | | | | | | 1.002 | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

* value is less than 5 x idl

Form VI

Q. C. Report No. 2

DUPLICATES

LAB NAME KadianPRE-DIGESTION
DUPLICATECASE NO. PLANT 4

EPA Sample No.

DATE 3-4-86Lab Sample ID No. 8602031-029Units ug/mMatrix water

digest

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD- |
|---------------|----------------------------|-----------|--------------|------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | .076 | .076 | 0.0 |
| 5. Beryllium | | | | |
| 6. Cadmium | | <.002 | <.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | .009* | .005* | 57 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | .005* | .010* | 67 |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| | | | | |
| Cyanide | | | | |

~~Out of Control~~

To be added at a later date.

$$^2 \text{ RPD} = [(S - D) / ((S + D) / 2)] \times 100$$

¹ - Non calculable RPD due to value(s) less than CRDL

A. Sample values are less than 5X the detection limit, therefore RPDs are high.

B - 12

* value is less than 5 x dl

5 145

Form V

Q. C. Report No. 2

SPIKE SAMPLE RECOVERY

PRE-DIGEST

LAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

EPA Sample No.

Lab Sample ID No. 8602031-039Units ug/mlMatrix waterpre-digest
spike

| Compound | Control Limit %R | Spike Sample Result (SSR) | Sample Result (SR) | Spike Added (SA) | %R |
|---------------|---------------------|------------------------------|-----------------------|---------------------|----|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | " | | | | |
| 3. Arsenic | " | | | | |
| 4. Barium | " | 1.81 | .072 | 2.00 | 87 |
| 5. Beryllium | " | | | | |
| 6. Cadmium | " | .036 | 1.002 | .050 | 72 |
| 7. Calcium | " | | | | |
| 8. Chromium | " | .17 | 1.005 | .20 | 85 |
| 9. Cobalt | " | | | | |
| 10. Copper | " | | | | |
| 11. Iron | " | | | | |
| 12. Lead | " | | | | |
| 13. Magnesium | " | | | | |
| 14. Manganese | " | | | | |
| 15. Mercury | " | | | | |
| 16. Nickel | " | | | | |
| 17. Potassium | " | | | | |
| 18. Selenium | " | | | | |
| 19. Silver | " | .20 | .007* | .25 | 77 |
| 20. Sodium | " | | | | |
| 21. Thallium | " | | | | |
| 22. Tin | " | | | | |
| 23. Vanadium | " | | | | |
| 24. Zinc | " | | | | |
| Other: | | | | | |
| Cyanide | " | | | | |

$$\%R = [(SSR - SR) / SA] \times 100$$

"R" - out of control

Comments: spike added to sample - no detection* value is less than
5X LDI

B - 11

5 146

volume change

Volatile Organics

DETECTION LIMITS

| 8602031-02→-08 | | | |
|--------------------------|--------------------------------------|--|--|
| METHOD 601 | METHOD DETECTION LIMIT ug/l | | |
| COMPOUND | -02→-08 | | |
| Chloromethane | 0.08 | | |
| Bromomethane | 1.18 | | |
| Vinyl Chloride | 0.18 | | |
| Chloroethane | 0.52 | | |
| Methylene Chloride | 0.25 | | |
| Trichlorofluoromethane | 0.10 | | |
| 1,1-Dichloroethene | 0.13 | | |
| 1,1-Dichloroethane | 0.07 | | |
| Trans-1,2-Dichloroethene | 0.10 | | |
| Chloroform | 0.05 | | |
| 1,2-Dichloroethane | 0.03 | | |
| 1,1,1-Trichloroethane | 0.03 | | |
| Carbon Tetrachloride | 0.12 | | |
| Bromodichloromethane | 0.10 | | |
| 1,2-Dichloropropane | 0.04 | | |
| Trichloroethene | 0.18 | | |
| Dibromochloromethane | 0.09 | | |
| 2-Chloroethylvinyl Ether | 0.13 | | |
| Bromoform | 0.20 | | |
| Tetrachloroethene | 0.03 | | |
| Chlorobenzene | 0.25 | | |
| 1,3-Dichlorobenzene | 0.32 | | |
| 1,2-Dichlorobenzene | 0.15 | | |
| 1,4-Dichlorobenzene | 0.24 | | |

DETECTION LIMITS

VOLATILE ORGANICS

METHOD 602

| COMPOUND | DETECTION LIMIT $\mu\text{g/L}$ | | | | | |
|---------------------|---------------------------------|------|------|--|--|--|
| | -0.2, -0.3 -0.5, -0.7, 0.8 | -0.4 | -0.6 | | | |
| BENZENE | 0.2 | 200 | - | | | |
| TOLUENE | 0.2 | 200 | - | | | |
| ETHYLBENZENE | 0.2 | 200 | - | | | |
| CHLOROBENZENE | 0.2 | 200 | - | | | |
| 1,4-DICHLOROBENZENE | 0.3 | 300 | - | | | |
| 1,3-DICHLOROBENZENE | 0.4 | 400 | - | | | |
| 1,2-DICHLOROBENZENE | 0.4 | 400 | - | | | |
| P-xylene | - | - | 0.2 | | | |
| m-xylene | - | - | 0.2 | | | |
| O-xylene | - | - | 0.2 | | | |

VOA RESULTS

| | | | |
|---------------------------|--|-------------------------|--|
| LAB # <u>54580 BLANK</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| ----- | | ----- | |
| EPA METHOD 601 | DATE: <u>2/6/86</u> ANALYST: <u>JSC</u> INSTRUMENT: <u>Quinn</u> | EPA METHOD 602 | DATE: _____ ANALYST: _____ INSTRUMENT: _____ |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | <u>0.15</u> | Bromochloromethane | _____ |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | _____ |
| 1,1,2-Trichloroethane | | 1,4-Dichlorobutane | _____ |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | _____ |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | 11-08-86 | |
|---------------------------|---|---------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/6/86 ANALYST: [signature] INSTRUMENT: [signature] | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | 0.18 | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VQA RESULTS

| LAB # | | SYSTEM | |
|---------------------------|---|---------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 11/16 ANALYST: BZ INSTRUMENT: Duran | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | 118627 BUNK | |
|---------------------------|---|-------------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/10/92 ANALYST: C INSTRUMENT: Summit | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | D.YY | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

[illegible]

VOA RESULTS

| LAB # <u>116007 BUNIL</u> | | | |
|---------------------------|----------------------------------|-------------------------|---|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/6/86</u> ANALYST: <u>CY</u> INSTRUMENT: <u>QEL</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | N2 |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| DATE: 2/6/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | Z RECOVERY | |
|----------------|----------------------------|---------------------------|--------------------------|--------|---------------|--|
| INSTRUMENT | | | D | | D | |
| ANALYST | | | C | | 9 | |
| TEST METHOD | COMPOUND | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | |
| | Chloroethane | 28.1 | | | | |
| | Methylene Chloride | 26.3 | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | |
| | Carbon Tetrachloride | 60.0 | | | | |
| | Dichlorobromomethane | 40.0 | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | |
| EPA 602 | Benzene | 30.7 | 36.1 | | 118 | |
| | Toluene | 4.1 | 4.7 | | 114 | |
| | Ethylbenzene | 11.5 | 11.8 | | 102 | |
| | P-Xylene | 19.1 | 21.6 | | 113 | |
| | M-Xylene | 42.6 | 47.5 | | 112 | |
| | O-Xylene | 10.6 | 10.9 | | 103 | |
| EPA 608 | | (ug/g) | | (ug/g) | | |
| | Aroclor 1242 | 58.7 | | | | |
| | Aroclor 1260 | 56.8 | | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/6/76

| | CERTIFIED VALUE (mg/L) | G ANALYZED VALUE | G % REC |
|---------------------------|------------------------------|------------------------|------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 10.1 | 110 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.0 | 80 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 67.1 | 156 |
| 1,2-Dichloroethane | 27.6 | 25.1 | 91 |
| 1,1,1-Trichloroethane | 14.3 | 13.5 | 95 |
| Carbon tetrachloride | 20.0 | 18.2 | 91 |
| Bromodichloromethane | 7.9 | 8.8 | 111 |
| 1,2-Dichloropropane | 8.0 | 8.0 | 100 |
| Trichloroethene | 22.2 | 23.5 | 106 |
| Dibromochloromethane | 16.7 | 13.5 | 81 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 9.8 | 99 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 9.7 | 119 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

5/10/96

| | CERTIFIED VALUE (mg/L) | B / G ANALYZED VALUE | B / G B REC |
|---------------------------|------------------------------|----------------------------|----------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 9.6 / 10.9 | 104 / 119 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.9 / 7.2 | 89 / 72 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 55.2 / 66.5 | 129 / 155 |
| 1,2-Dichloroethane | 27.6 | 24.7 / 22.9 | 90 / 83 |
| 1,1,1-Trichloroethane | 14.3 | 16.3 / 14.5 | 114 / 101 |
| Carbon tetrachloride | 20.0 | 19.9 / 17.3 | 99 / 87 |
| Bromodichloromethane | 7.9 | 8.9 / 8.4 | 112 / 107 |
| 1,2-Dichloropropane | 8.0 | 8.0 / 7.3 | 100 / 91 |
| Trichloroethene | 22.2 | 23.7 / 22.7 | 107 / 102 |
| Dibromochloromethane | 16.7 | 16.9 / 13.4 | 101 / 80 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 8.6 / 9.5 | 87 / 96 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.4 / 7.5 | 102 / 92 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SPIKE RECOVERY

| EPA METHOD 601 | 8602031-03D | | | | | | | |
|--------------------------|-------------|----|------|-----|-------------|----|----|----|
| Volatile Organics | PART 4 | | | | | | | |
| | 860105 | | | | 2/10/86 | | | |
| | Sma | | | | CO Skinning | | | |
| COMPOUNDS | SSR | SR | SA | ZR | SSR | SR | SA | ZR |
| Chloromethane | | | | | | | | |
| Bromomethane | | | | | | | | |
| Vinyl chloride | | | | | | | | |
| Chloroethane | | | | | | | | |
| Methylene chloride | 10.4 | | 9.2 | 113 | | | | |
| Trichlorofluoromethane | | | | | | | | |
| 1,1-Dichloroethene | 8.40 | | 10.0 | 84 | | | | |
| 1,1-Dichloroethane | | | | | | | | |
| trans-1,2-Dichloroethene | 6.03 | | 5.4 | 112 | | | | |
| Chloroform | 68.6 | | 43.0 | 160 | | | | |
| 1,2-Dichloroethane | 25.5 | | 27.6 | 92 | | | | |
| 1,1,1-Trichloroethane | 16.1 | | 14.3 | 113 | | | | |
| Carbon Tetrachloride | 22.7 | | 22.0 | 114 | | | | |
| Bromodichloroemethane | 9.3 | | 7.5 | 117 | | | | |
| 1,2-Dichloropropane | 8.6 | | 8.0 | 109 | | | | |
| Trichloroethene | 25.7 | | 22.2 | 116 | | | | |
| Dibromochloromethane | 14.3 | | 16.7 | 86 | | | | |
| 1,1,2-Trichloroethane | | | | | | | | |
| cis-1,2-Dichloropropene | | | | | | | | |
| 2-Chlorethylvinyl ether | | | | | | | | |
| Bromoform | 10.3 | | 9.9 | 104 | | | | |
| 1,1,2,2-Tetrachlorethane | | | 10.0 | | | | | |
| Tetrachlorethylene | | | 6.2 | | | | | |
| Chlorobenzene | 9.8 | | 9.8 | 119 | | | | |
| 1,3-Dichlorobenzene | | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

SPIKE RECOVERY

EPA Method 602
Volatile Organics

2/1/06
PR
D

SAMPLE # 86 0231-06D

UNITS PARTS PER MILLION
860105

| COMPOUND | SSR | SR | SA | ZR |
|---------------------|------|------|------|-----|
| Benzene | 33.6 | | 32.7 | 110 |
| Toluene | 5.09 | 2.28 | 4.1 | 69 |
| Ethyl benzene | 11.1 | | 11.5 | 97 |
| 1,4-Dichlorobenzene | | | | |
| 1,3-Dichlorobenzene | | | | |
| 1,2-Dichlorobenzene | | | | |
| O-Xylene | 9.1 | | 10.6 | 86 |
| M-Xylene | 74.1 | | 42.6 | 103 |
| P-Xylene | 20.0 | | 19.1 | 105 |
| Chlorobenzene | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

DUPLICATE ANALYSIS

EPA METHOD 602

VOLATILE ORGANICS

SAMPLE # 860031-03E

UNITS ug/l
860125

| COMPOUND | RUN#1 | RUN#2 | RPD |
|---------------------|-------|-------|-----|
| Benzene | ND | ND | NC |
| Toluene | | | |
| Ethyl benzene | | | |
| 1,4-Dichlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| O-Xylene | | | |
| M-Xylene | | | |
| P-Xylene | | | |
| Chlorobenzene | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD= Relative Percent Difference

SURROGATE RECOVERIES

LAB #: 8402031-02C

SAMPLE ID: 840124

DATE: 2-6-84-

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 109%

2-BROMO-1-CHLOROPROPANE: 100%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602031-030

SAMPLE ID: 860125

DATE: 2-6-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 90%

2-BROMO-1-CHLOROPROPANE: 81%

602/8020

a, a, a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8606031-04B

SAMPLE ID: 8600127

DATE: 2-6-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 117%

2-BROMO-1-CHLOROPROPANE: 102%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 860203105B

SAMPLE ID: 860128

DATE: 2-6-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 120%

2-BROMO-1-CHLOROPROPANE: 121%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8606031-07A

SAMPLE ID: FIELD BLANK

DATE: 2-6-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 105%

2-BROMO-1-CHLOROPROPANE: 110%

602/8020

a, a, a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602031-08A

SAMPLE ID: TRIP BLANK

DATE: 2-6-80

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 125%

2-BROMO-1-CHLOROPROPANE: 117%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8605031-02E

SAMPLE ID: 860124

DATE: 2-6-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 106%

SURROGATE RECOVERIES

LAB #: 8600031-03E

SAMPLE ID: 860125

DATE: 2-10-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a, a, a-TRIFLUOROTOLUENE: 109%, 109%

SURROGATE RECOVERIES

LAB #: 8008031-C4E

SAMPLE ID: 800177

DATE: 2-10-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a, a, a-TRIFLUOROTOLUENE: 114%

SURROGATE RECOVERIES

LAB #: 8608031-05D

SAMPLE ID: 860128

DATE: 2-6-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 112%

SURROGATE RECOVERIES

LAB #: 86002031-OLD

SAMPLE ID: 860159

DATE: 2-6-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 100%

SURROGATE RECOVERIES

LAB #: 8002031-07B

SAMPLE ID: FIELD BLANK

DATE: 2-6-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 94%

SURROGATE RECOVERIES

LAB #: 8600031-08A

SAMPLE ID: TRIP BLANK

DATE: 2-6-86

INSTRUMENT: 1D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a, a, a-TRIFLUOROTOLUENE: 96%

RADIAN
CORPORATION

SACRAMENTO

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address General Dynamics - Fortworth Plant 4
Sample Point Description Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name Neil Robinson Date/Time Sampled 2-6-86

Amount of Sample Collected 7 (seven) 1,000 ml Dk Glass Bottles

Sample Description Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ - 10°C ☒ Other 40°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RADIAN

Received By Neil Robinson Date Received _____ Time _____

Transported By Neil Robinson Lab Sample No. 810 025 002

Comments _____

Inclusive Dates of Possession 2-6-86

Organization Name Radian Analytical Services

Received By C. Rasmussen Date Received 2-7-86 Time 0925

Transported By Federal Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

RADIAN
CORPORATION

SACTO

EP 625 860135, 860120

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address General Dynamics - Fortworth, Plant 4
Sample Point Description Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name NEIL ROBINSON Date/Time Sampled 2-6-86

Amount of Sample Collected (3) Three 1,000ml DK Glass bottles

Sample Description Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ - 10°C ☒ Other 10C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RADIAN

Received By _____ Date Received _____ Time _____

Transported By Neil Robinson Lab Sample No. 86-0135, 86-0120

Comments _____

Inclusive Dates of Possession 2-6-86

Organization Name Radian Analytical Services

Received By C. Ramseyer Date Received 2-7-86 Time 09:25

Transported By Federal Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

RADIAN
CORPORATION

AUSTIN

METALS 860134; 860126; 860135; 860131; 860132; 860130
HYDROCARBON FUELS 860131; 860130 OIL & GREASE 860130; 860131
EPA 601 860132; 860126; 860131; 860130; 860135; FIELD DUPE
EPA 602 860132; 860126; 860131; 860130; 860135; FIELD DUPE

CHAIN OF CUSTODY RECORD

ONE TRIP BLANK

EPA 601 860134

Field Sample No. _____

EPA 602 860134

Company Sampled/Address General Dynamics - Fort Worth, Plan 4

Sample Point Description Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name NEIL ROBINSON Date/Time Sampled 2-6-86

Amount of Sample Collected (27) twenty seven 40ml VOAS; (6) six 1/2 liter serum; (1) for 100 ml MON TARS

Sample Description Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 40C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RADIAN

Received By _____ Date Received _____ Time _____

Transported By Neil Robinson Lab Sample No. _____

Comments _____

Inclusive Dates of Possession 2-6-86

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

PLANT 4 86-01-240 samples 01-09 FOR W.O. 86-01-240 86-02-087 UNITS $\mu\text{g}/\text{ml}$

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|---------|----------------|-------------|------------|-----|--------------------|--------|-----|------------------|----------------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2/8/86 | .041 | .040 | 103 | an dup 01 A | <.005 | NC | an sp 01 A | <.005 | .024 | .024 | 100 | prep bl <.005 |
| | i.d.l. = .005 | .041 | .040 | 103 | | | | | | | | | col bl <.005 |
| | | .040 | .040 | 100 | | | | | | | | | |
| Hg | 2/3/86 | .0054 | .0050 | 108 | dig dup 09 A | <.0002 | NC | dig sp 09 A | <.0002 | .0028 | .0020 | 140 | prep bl ,0004* |
| | i.d.l. = .0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Pb | 2-11/86 | .042 | .045 | 93 | an dup 09 A | <.002 | NC | an sp 09 A | <.002 | .019 | .024 | 79 | prep bl ,002- |
| | i.d.l. = .002 | .046 | .045 | 102 | | | | | | | | | col bl <.002- |
| | | | | | | | | | | | | | |
| Sc | 2/9/86 | .044 | .050 | 88 | an dup 05 A | <.003 | NC | an sp 05 A | <.003 | .018 | .024 | 75 | prep bl <.003 |
| | i.d.l. = .003 | .044 | .050 | 88 | | | | an sp 05 1:10 | <.003 | .022 | .024 | 92 | col bl <.003 |
| | | | | | | | | dilution | | | | | |
| Hg | 2/8/86 | .0054 | .0050 | 108 | dig dup 03 A | <.0002 | NC | dig sp 04 A | <.0002 | .0024 | .0020 | 120 | <.0002 prep bl |
| | i.d.l. = .0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |

an dup = analytical duplicate
dig dup = digestion duplicate
i.d.l. = instrument detection limit

an sp = analytical spike
dig sp = digestion spike or matrix

* indicates value is less than 5X instrument detection limit
NC = not calculable

UNITS ug/lal

PLANT 4 86-02-031 samples (01-02, 03, 06)-0110Grease 02, 03-METALS

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|-------------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|-----------------|------|-------|-------|----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-19-86 | .039 | .040 | 98 | an dup 02 g | <.005 | <.005 | NC | an. sp 0.2 g | 5005 | .023 | .024 | 96 | prep bl <.005 |
| | idl = .005 | .040 | .040 | 100 | | | | | | | | | | cal bl <.005 |
| | | | | | | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | — | | | | dig sp 0.3 g | 5002 | .0019 | .0020 | 95 | prep bl <.0002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-12-86 | .044 | .045 | 98 | an dup 02 g | .033 | .030 | 9.4 | an. sp 0.2 g | .033 | .053 | .024 | 83 | prep bl <.0002 |
| | idl = .002 | .045 | .045 | 100 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | — | | | | an. sp 0.2 g | .003 | .021 | .024 | 75 | prep bl <.0002 |
| | idl = .002 | .040 | .040 | 100 | | | | | | | | | | cal bl <.0002 |
| | | .039 | .040 | 98 | | | | | | | | | | |
| 0.1 and Grease | 2-14-86 | 197 | 200 | 99 | — | | | | | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| | | 430 | 415 | 104 | | | | | | | | | | |
| HC | idl = 1 | 208 | 245 | 118 | | | | | | | | | | |

an. sp = analytical spike

dig. sp = predigest w matrix spike

idl = instrument detection limit

an. dup = analytical duplicate

dig. dup = digestion duplicate

* indicates value is less than 5x instrument
detection limit

NC = not calculable

UNITS ug/ml

PLANT 4 86-02-041 samples 01-06

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|--------|--------|-----|-----------------------------|--------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-19-86 | .039 | .040 | 98 | an dup 01 E | <.005 | <.005 | NC | an sp 01 E | <.005 | .022 | .024 | 92 | prep bl <.005 |
| | idl=.005 | .037 | .040 | 93 | | | | | | | | | | cal bl <.005 |
| | | .035 | .040 | 88 | | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup 06 E | <.0002 | *.0002 | NC | dig sp 05 E | <.0002 | .0022 | .0020 | 110 | prep bl <.0002 |
| | idl=.0002 | .0044 | .0040 | 110 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup 01 E | <.002 | <.002 | NC | an sp 01 E 1.10ml/min | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl=.002 | .045 | .045 | 100 | | | | | | | | | | |
| | | .048 | .045 | 107 | | | | | | | | | | |
| Sc | 2-17-86 | .042 | .040 | 105 | - | | | | an sp 03 E | *.003 | .021 | .024 | 75 | prep bl <.002 |
| | idl=.002 | .039 | .040 | 98 | | | | | | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| oil and grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | | |
| | idl=1 | 197 | 200 | 99 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| HC -idl=1 | 2-14-86 | | | | an dup 03 | <1 | <1 | NC | | | | | | |

* indicates value is less than 5x instrument detection limit
NC = not calculable

an sp = analytical spike
dig sp = digestion spike or matrix spike

an dup = analytical duplicate
dig dup = digestion duplicate

an sp = analytical spike
dig sp = digestion spike or matrix spike

UNITS ug/lb

PLANT 4 86-02-060 samples 01-05

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|---------------------------------|-------|-------|-------|-----|----------------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| | | | | | | | | | | | | | | |
| As | 2-15-86 | .039 | .027 | 107 | dig dup 01C | .003* | .003* | 40 | dig sp 0.3 C | .006* | .023 | .020 | 85 | prep bl ≤.002 |
| | idl = .002 | .042 | .040 | 105 | an. dup 03 C | .006* | .003* | 67 | an sp 0.5 A 1:10 dil | ≤.002 | .024 | .024 | 100 | cal bl ≤.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | 0.5 A | ≤.002 | .0020 | .0020 | 100 | prep bl ≤.0002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | dig dup 01C | .034 | .031 | 9.1 | dig sp 0.3 C | .27 | .29 | .020 | 100 | prep bl cal bl ≤.002 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | dig dup 01C | .003* | .003* | 40 | dig sp 0.3 C | ≤.002 | .005 | .010 | 50 | prep bl cal bl ≤.002 |
| | idl = .002 | .040 | .040 | 100 | | | | | an sp 0.5 A 1:10 dilution | ≤.002 | .023 | .024 | 96 | cal bl ≤.002 |
| oil and grease | 2-14-86 | 197 | 200 | 99 | - | | | | - | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an sp = analytical spike
dig sp = digestion or matrix spike
idl = instrument detection limit

an dup = analytical duplicate
dig dup = digestion duplicate

* indicates value is less than 5x instrument detection limit
NC = not calculable

UNITS ug/lal

PLANT 4 86-02-067

| ELEMENT | ANALYSIS DATE | QC DATA | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS | |
|----------------|---------------|-------------|------------|--------------------|----------------|------|------|----------------|----------------|--------|-------|-------|--------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP # | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | | %R |
| As | 2-15-86 | .029 | .027 | 107 | — | | | | an sp 03 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .042 | .040 | 105 | | | | | 1:10 dilution | | | | | cal bl <.002 |
| Hg | 2-24-86 | .0048 | .0050 | 96 | — | | | | dig sp 04 E | <.0002 | .0020 | .0020 | 100 | prep bl <.0002 |
| | 2-20-86 | .0048 | .0050 | 96 | | | | | | | | | | prep bl <.0002 |
| | idl = .0002 | .0044 | .0040 | 110 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | an dup 04 E | .037 | .038 | 2.7 | an sp 03 E | .020 | .035 | .024 | 63 | prep bl .004 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | | cal bl <.002 |
| Se | 2-17-86 | .042 | .040 | 105 | an dup 01 E | .007 | .007 | 0 | an sp 04 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .040 | .040 | | | | | | 1:10 dilution | | | | | cal bl <.002 |
| Oil and Grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |

idl = instrument detection limit
 an sp = analytical spike
 dig sp = digestion or matrix spike
 dig = digestion duplicate
 an dup = analytical duplicate
 * indicates value is less than 5x instrument detection limit
 NC = not calculable

UNITS µg/ml

PLANT 4 86-03-079 sampled 01 - 04 samples 050607-046, HC

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|--------------|---------------|-------------|------------|-----|--------------------|-------|--------|--------|----------------|-----|----|----|--------|--------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP# | RPD | SAMP# | SR | SSR | SA | SR | PREP# | |
| As | 2-21-86 | .043 | .040 | 105 | an dup | 01A | .011 | .010 | 9.5 | | | | an sp | prep#1 |
| | idl = .002 | .043 | .040 | 105 | dig dup | 01A | .011 | .011 | 0 | | | | 01A | <.002 |
| | | .042 | .040 | 105 | | | | | | | | | 01A | <.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup | 01A | <.0002 | <.0002 | NC | | | | dig sp | prep#1 |
| | idl = .0002 | .0043 | .0040 | 105 | | | | | | | | | 01A | <.0002 |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-21-86 | .043 | .043 | 98 | dig dup | 01A | .048 | .047 | 2.1 | | | | dig sp | prep#1 |
| | idl = .002 | .043 | .043 | 100 | | | | | | | | | an sp | prep#1 |
| | | | | | | | | | | | | | an sp | prep#1 |
| Se | 2-21-86 | .041 | .040 | 103 | dig dup | 01A | <.0002 | <.0002 | NC | | | | dig sp | prep#1 |
| | idl = .002 | .043 | .040 | 108 | | | | | | | | | an sp | prep#1 |
| | | | | | | | | | | | | | an sp | prep#1 |
| Oil & Grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | an sp | prep#1 |
| | idl = 1 | | | | | | | | | | | | an sp | prep#1 |
| | | | | | | | | | | | | | an sp | prep#1 |

an dup = analytical duplicate dig dup = pre-digest duplicate idl = instrument detection limit NC = NOT CALCULABLE
 an sp = analytical spike dig sp = pre-digest spike * - value is less than 5 x idl

PLANT 4 86-02-087 samples 0405 (metals) 0102,03(MC) UNITS mg/ml

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|-------------------|---------------|-------------|------------|-----|--------------------|------|------|-----|-----------------------|-------|-------|-------|-----|---|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-24-86 | .036 | .040 | 90 | and dup 04A | .038 | .038 | 0 | an sp 05A | <.002 | .024 | .024 | 100 | prep bl -<.002 cal bl -<.008 cal bl -<.002 |
| | idl=-.002 | .036 | .040 | 90 | | | | | | | | | | |
| | | .037 | .040 | 93 | - | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | | | | | dig sp 05A | <.002 | .0019 | .0020 | 95 | prep bl -<.0002 |
| | idl=-.0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-21-86 | .042 | .043 | 98 | - | | | | an sp 05A | <.002 | .017 | .024 | 71 | prep bl -<.002* |
| | idl=-.002 | .043 | .043 | 100 | | | | | an sp 05A 1:10 dil | <.002 | .024 | .024 | 100 | cal bl -<.002 |
| | | | | | | | | | | | | | | |
| Se | 2-21-86 | .041 | .040 | 103 | | | | | an sp 04A | <.002 | .015 | .024 | 63 | prep bl -<.002 |
| | idl=-.002 | .043 | .040 | 108 | | | | | an sp 04A dilution | <.002 | .023 | .024 | 96 | cal bl -<.002 |
| | | | | | | | | | | | | | | |
| oil and grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | idl=1 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an dup=analytical duplicate an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike
idl = instrument detection limit *value is less than five times the instrument detection limit NC=not calculable

For work 86 0124
 orders 86 0203
 86 0204
 86 0206
 86 0208
 86 0207
 86 0208

Form VII

Q.C. Report No. 2
 INSTRUMENT DETECTION LIMITS AND
 LABORATORY CONTROL SAMPLE

LAB NAME Radium
 DATE 3-4-86

CASE NO. PLANT 4
 LCS UNITS ug/L mg/kg
ug/ml (Circle One)

| Compound | Required Detection | Instrument Detection | | Lab Control Sample | | |
|---------------|--------------------|----------------------|----------|--------------------|-------|----|
| | Limits (CRDL)-ug/l | Limits (IDL)-ug/l | | True | Found | ZR |
| | | ICP/AA | Furnace* | | | |
| Metals: | | | | | | |
| 1. Aluminum | 200 | | | | | |
| 2. Antimony | 60 | | | | | |
| 3. Arsenic | 10 | | | | | |
| 4. Barium | 200 | <.001 | | | | |
| 5. Beryllium | 5 | | | | | |
| 6. Cadmium | 5 | <.002 | | | | |
| 7. Calcium | 5000 | | | | | |
| 8. Chromium | 10 | <.005 | | | | |
| 9. Cobalt | 50 | | | | | |
| 10. Copper | 25 | | | | | |
| 11. Iron | 100 | | | | | |
| 12. Lead | 5 | | | | | |
| 13. Magnesium | 5000 | | | | | |
| 14. Manganese | 15 | | | | | |
| 15. Mercury | 0.2 | | | | | |
| 16. Nickel | 40 | | | | | |
| 17. Potassium | 5000 | | | | | |
| 18. Selenium | 5 | | | | | |
| 19. Silver | 10 | <.002 | | | | |
| 20. Sodium | 5000 | | | | | |
| 21. Thallium | 10 | | | | | |
| 22. Tin | 40 | | | | | |
| 23. Vanadium | 50 | | | | | |
| 24. Zinc | 20 | | | | | |
| Other: | | | | | | |
| Cyanide | 10 | 5 | 184 | | | |

* detection limits are given on ³⁻¹³ Furnace /Hg/046 QA/QC SUMMARY SHEETS

ICP QA / PC DATA

For work
orders

8601240
8602031
8602041
8602060
8602067
8602079
8602087

Form II

Q. C. Report No. 2INITIAL AND CONTINUING CALIBRATION VERIFICATION³LAB NAME RadianCASE NO. PLANT 4

DATE

3-4-86

SOW NO. _____

UNITS

ug/ml

Compound

Initial Calib.¹Continuing Calibration²

Metals:

| | True Value | Found | IR | True Value | Found | IR | Found | IR | Method ⁴ |
|---------------|------------|-------|-----|------------|-------|-----|-------|-----|---------------------|
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | 100 | 101 | 101 | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | 100 | 104 | 104 | 1.00 | 1.05 | 105 | 1.04 | 104 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | 100 | 101 | 101 | 1.00 | 1.02 | 102 | 1.02 | 102 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | 100 | 100 | 100 | 1.00 | 1.02 | 102 | 1.00 | 100 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____² Continuing Calibration Source _____³ Control Limits: Mercury and Tin. 80-120; All Other Compounds 90-110⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form II

Q. C. Report No. 5

INITIAL AND CONTINUING CALIBRATION VERIFICATION³

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

SOW NO. _____

UNITS µg/ml

| Compound | | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|----------|-----------|-----------------------------|-------|----|-------------------------------------|-------|-----|-------|-----|---------------------|
| Metals: | | True Value | Found | SR | True Value | Found | SR | Found | SR | |
| 1. | Aluminum | | | | | | | | | |
| 2. | Antimony | | | | | | | | | |
| 3. | Arsenic | | | | | | | | | |
| 4. | Barium | | | | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. | Beryllium | | | | | | | | | |
| 6. | Cadmium | | | | 1.00 | 1.04 | 104 | 1.03 | 103 | |
| 7. | Calcium | | | | | | | | | |
| 8. | Chromium | | | | 1.00 | 1.00 | 100 | 1.01 | 101 | |
| 9. | Cobalt | | | | | | | | | |
| 10. | Copper | | | | | | | | | |
| 11. | Iron | | | | | | | | | |
| 12. | Lead | | | | | | | | | |
| 13. | Magnesium | | | | | | | | | |
| 14. | Manganese | | | | | | | | | |
| 15. | Mercury | | | | | | | | | |
| 16. | Nickel | | | | | | | | | |
| 17. | Potassium | | | | | | | | | |
| 18. | Selenium | | | | | | | | | |
| 19. | Silver | | | | 1.00 | 1.01 | 101 | 1.02 | 102 | |
| 20. | Sodium | | | | | | | | | |
| 21. | Thallium | | | | | | | | | |
| 22. | Tin | | | | | | | | | |
| 23. | Vanadium | | | | | | | | | |
| 24. | Zinc | | | | | | | | | |
| Other: | | | | | | | | | | |
| Cyanide | | | | | | | | | | |

¹ Initial Calibration Source _____ ² Continuing Calibration Source _____

³ Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

8601245
8602021
8602041
8602060
8602067
8602079
8602087

Form III

Q. C. Report No. 2

BLANKS

LAB NAME Radium

CASE NO. PLANT 4

DATE 2-4-86

UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration Blank Value | Continuing Calibration Blank Value | | | | Preparation Blank | |
|-------------------------|---------------------------------------|---------------------------------------|-------|-------|-------|-------------------|---|
| | | 1 | 2 | 3 | 4 | 1 | 2 |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | 1.001 | 1.001 | 1.001 | 1.001 | 1.001 | | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | 1.002 | 1.002 | 1.002 | .002* | .002* | | |
| 7. Calcium | | | | | | | |
| 8. Chromium | 1.005 | 1.005 | 1.005 | 1.005 | 1.005 | | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | .006* | .018 | .010 | .009* | .014 | | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x idl

86-02031
86-02041

Form III

Q. C. Report No. 3

BLANKS

2-11-86

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

UNITS ug/ml

Matrix water

| Preparation Compound | <u>Initial</u> <u>Calibration</u> Blank Value | <u>Continuing Calibration</u> <u>Blank Value</u> | | | | <u>Preparation Blank</u> | |
|-------------------------|---|---|---|---|---|--------------------------|---|
| | | 1 | 2 | 3 | 4 | 1 | 2 |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | | | | | | .004* | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | | | | | | 2.002 | |
| 7. Calcium | | | | | | | |
| 8. Chromium | | | | | | 2.005 | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | | | | | | 2.002 | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

* value is less than 5 x idl

Form VI

Q. C. Report No. 2

DUPLICATES
ANALYTICAL

LAB NAME Radiation

CASE NO. PLANT 4

DATE 3-4-86

EPA Sample No.

Lab Sample ID No. 8602041-01E

Units ug/ml

Matrix water

analytical

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD- |
|---------------|----------------------------|-----------|--------------|------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | .076 | .077 | 1.3 |
| 5. Beryllium | | | | |
| 6. Cadmium | | 1.002 | 1.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | .007* | .009* | 25 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | 1.002 | 1.002 | NC |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

* Out of Control

To be added at a later date.

$$^2 \text{ RPD} = [(S - D) / ((S + D) / 2)] \times 100$$

¹ - Non calculable RPD due to value(s) less than CRDL

* value is less than 5xidl

Form V

Q. C. Report No. 2

SPIKE SAMPLE RECOVERY

ANALYTICAL

LAB NAME RadianCASE NO. PIRAT 4DATE 3-4-86

EPA Sample No.

Lab Sample ID No. 8603041-076Units µg/mlMatrix Water

| Compound | Control Limit XR | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | XR ¹ |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | - | | | | |
| 3. Arsenic | - | | | | |
| 4. Barium | - | 1.50 | 0.52 | 1.00 | 98 |
| 5. Beryllium | - | | | | |
| 6. Cadmium | - | 0.94 | <0.002 | 1.00 | 94 |
| 7. Calcium | - | | | | |
| 8. Chromium | - | 0.98 | 0.019 * | 1.00 | 96 |
| 9. Cobalt | - | | | | |
| 10. Copper | - | | | | |
| 11. Iron | - | | | | |
| 12. Lead | - | | | | |
| 13. Magnesium | - | | | | |
| 14. Manganese | - | | | | |
| 15. Mercury | - | | | | |
| 16. Nickel | - | | | | |
| 17. Potassium | - | | | | |
| 18. Selenium | - | | | | |
| 19. Silver | - | 0.98 | 0.003 * | 1.00 | 98 |
| 20. Sodium | - | | | | |
| 21. Thallium | - | | | | |
| 22. Tin | - | | | | |
| 23. Vanadium | - | | | | |
| 24. Zinc | - | | | | |
| Other: | | | | | |
| Cyanide | - | | | | |

¹ XR = [(SSR - SR)/SA] x 100

"R" - out of control

Comments: * value is less than 5x10¹

Volatile Organics

DETECTION LIMITS

| 8602041-01-08 | | | |
|--------------------------|-----------|--------|------|
| METHOD 601 | | | |
| COMPOUND | METHOD | | |
| | DETECTION | | |
| | LIMIT | | |
| | ug/l | | |
| | -01 | -02-03 | -04 |
| | -06-08 | | |
| Chloromethane | 0.08 | 80 | 4.0 |
| Bromomethane | 1.18 | 1180 | 59.0 |
| Vinyl Chloride | 0.18 | 180 | 9.0 |
| Chloroethane | 0.52 | 520 | 26.0 |
| Methylene Chloride | 0.25 | 250 | 12.5 |
| Trichlorofluoromethane | 0.10 | 100 | 5.0 |
| 1,1-Dichloroethene | 0.13 | 130 | 6.5 |
| 1,1-Dichloroethane | 0.07 | 70 | 3.5 |
| Trans-1,2-Dichloroethene | 0.10 | 100 | 5.0 |
| Chloroform | 0.05 | 50 | 2.5 |
| 1,2-Dichloroethane | 0.03 | 30 | 1.5 |
| 1,1,1-Trichloroethane | 0.03 | 30 | 1.5 |
| Carbon Tetrachloride | 0.12 | 120 | 6.0 |
| Bromodichloromethane | 0.10 | 100 | 5.0 |
| 1,2-Dichloropropane | 0.04 | 40 | 2.0 |
| Trichloroethene | 0.12 | 120 | 6.0 |
| Dibromochloromethane | 0.09 | 90 | 4.5 |
| 2-Chloroethylvinyl Ether | 0.13 | 130 | 6.5 |
| Bromoform | 0.20 | 200 | 10.0 |
| Tetrachloroethene | 0.03 | 30 | 1.5 |
| Chlorobenzene | 0.25 | 250 | 12.5 |
| 1,3-Dichlorobenzene | 0.32 | 320 | 16.0 |
| 1,2-Dichlorobenzene | 0.15 | 150 | 7.5 |
| 1,4-Dichlorobenzene | 0.24 | 240 | 12.0 |

Volatile Organics

DETECTION LIMITS

8602041-01-08

| METHOD 601 | | METHOD | |
|--------------------------|------|-----------|--|
| | | DETECTION | |
| | | LIMIT | |
| | | ug/l | |
| COMPOUND | -05 | | |
| Chloromethane | 2.0 | | |
| Bromomethane | 29.5 | | |
| Vinyl Chloride | 3.0 | | |
| Chloroethane | 13.0 | | |
| Methylene Chloride | 6.25 | | |
| Trichlorofluoromethane | 2.5 | | |
| 1,1-Dichloroethene | 3.25 | | |
| 1,1-Dichloroethane | 1.75 | | |
| Trans-1,2-Dichloroethene | 2.5 | | |
| Chloroform | 1.25 | | |
| 1,2-Dichloroethane | 0.75 | | |
| 1,1,1-Trichloroethane | 0.75 | | |
| Carbon Tetrachloride | 3.0 | | |
| Bromodichloromethane | 2.5 | | |
| 1,2-Dichloropropane | 1.0 | | |
| Trichloroethene | 3.0 | | |
| Dibromochloromethane | 2.25 | | |
| 2-Chloroethylvinyl Ether | 3.25 | | |
| Bromoform | 5.0 | | |
| Tetrachloroethene | 0.75 | | |
| Chlorobenzene | 6.25 | | |
| 1,3-Dichlorobenzene | 8.0 | | |
| 1,2-Dichlorobenzene | 3.75 | | |
| 1,4-Dichlorobenzene | 6.0 | | |

DETECTION LIMITS

VOLATILE ORGANICS

86020011-01-2-08

METHOD 602

| COMPOUND | DETECTION LIMIT ug/l | | | | |
|---------------------|----------------------|-------|-------|--|--|
| | 01-06-08 | 02-03 | 04-05 | | |
| BENZENE | 0.2 | 200 | 2.0 | | |
| TOLUENE | 0.2 | 200 | 2.0 | | |
| ETHYLBENZENE | 0.2 | 200 | 2.0 | | |
| CHLOROBENZENE | 0.2 | 200 | 2.0 | | |
| 1,4-DICHLOROBENZENE | 0.3 | 300 | 3.0 | | |
| 1,3-DICHLOROBENZENE | 0.4 | 400 | 4.0 | | |
| 1,2-DICHLOROBENZENE | 0.4 | 400 | 4.0 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM BLANK | |
|---------------------------|--|-------------------------|----------------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: 2/12/82 ANALYST: JSC INSTRUMENT: [Signature] | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | Nn | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | _____ |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | _____ |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | _____ |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | _____ |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | REPORT BANK | |
|---------------------------|--|---------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/2/81 ANALYST: J. J. Smith INSTRUMENT: Shimadzu | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| EPA METHOD 601 | | DATE: 2/1/86 ANALYST: JSC INSTRUMENT: Shimadzu | | EPA METHOD 602 | | DATE: ANALYST: INSTRUMENT: | |
|---------------------------|----------------------|--|----------------------|----------------|----------------------|----------------------------------|----------------------|
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | NP | Benzene | | | | | |
| Bromomethane | | Toluene | | | | | |
| Vinyl Chloride | | Ethyl benzene | | | | | |
| Chloroethane | | Chlorobenzene | | | | | |
| Methylene chloride | | 1,4-Dichlorobenzene | | | | | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | | | | | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | | | | | |
| 1,1-Dichloroethane | | P-Xylene | | | | | |
| Trans-1,2-Dichloroethene | | M-Xylene | | | | | |
| Chloroform | | O-Xylene | | | | | |
| 1,2-Dichloroethane | | | | | | | |
| 1,1,1-Trichloroethane | | | | | | | |
| Carbon tetrachloride | | | | | | | |
| Bromodichloromethane | | | | | | | |
| 1,2-Dichloropropane | | | | | | | |
| Trans-1,3-Dichloropropene | | | | | | | |
| Trichloroethene | | | | | | | |
| Dibromochloromethane | | | | | | | |
| 1,1,2-Trichloroethane | | | | | | | |
| cis-1,3-Dichloropropene | | | | | | | |
| 2-Chloroethylvinyl ether | | | | | | | |
| Bromoform | | | | | | | |
| 1,1,2,2-Tetrachloroethane | | | | | | | |
| Tetrachloroethylene | | | | | | | |
| Chlorobenzene | | | | | | | |
| 1,3-Dichlorobenzene | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | |

VOA RESULTS

| LAB # _____ | | CLIENT NAME _____ | |
|---------------------------|--|-------------------------|----------------------------------|
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: 12/11/86 ANALYST: ep INSTRUMENT: Hewlett-Packard | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | No | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---------------------------|----------------------------------|-------------------------|---|
| LAB # _____ | | SYSTEM BUNK | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| ===== | | ===== | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/14/26 ANALYST: SS 6 INSTRUMENT: Qln |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2 Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---------------------------|----------------------|-------------------------------|----------------------|
| LAB # <u>SYSTEM BLANK</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| DATE: _____ | | DATE: 2/13/86 | |
| ANALYST: _____ | | ANALYST: JSC | |
| INSTRUMENT: _____ | | INSTRUMENT: 20.0 | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |
| | | SURROGATE RECOVERIES: | |
| | | 601 | |
| | | Bromochloromethane _____ | |
| | | 2-Bromo-1-Chloropropane _____ | |
| | | 1,4-Dichlorobutane _____ | |
| | | 602 | |
| | | a,a,a,-Trifluorotoluene _____ | |

VOA RESULTS

| LAB # | | CLIENT NAME | | SAMPLE ID | |
|---------------------------|--|----------------------|--|----------------------|--|
| EPA METHOD | | DATE: | | EPA METHOD | |
| 601 | | ANALYST: | | 602 | |
| | | INSTRUMENT: | | INSTRUMENT: | |
| COMPOUND | | CONCENTRATION (ug/L) | | COMPOUND | |
| | | | | CONCENTRATION (ug/L) | |
| Chloromethane | | Benzene | | | |
| Bromomethane | | Toluene | | | |
| Vinyl Chloride | | Ethyl benzene | | | |
| Chloroethane | | Chlorobenzene | | | |
| Methylene chloride | | 1,4-Dichlorobenzene | | | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | | | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | | | |
| 1,1-Dichloroethane | | P-Xylene | | | |
| Trans-1,2-Dichloroethene | | M-Xylene | | | |
| Chloroform | | O-Xylene | | | |
| 1,2-Dichloroethane | | | | | |
| 1,1,1-Trichloroethane | | | | | |
| Carbon tetrachloride | | | | | |
| Bromodichloromethane | | | | | |
| 1,2-Dichloropropane | | | | | |
| Trans-1,3-Dichloropropene | | | | | |
| Trichloroethene | | | | | |
| Dibromochloromethane | | | | | |
| 1,1,2-Trichloroethane | | | | | |
| cis-1,3-Dichloropropene | | | | | |
| 2-Chloroethylvinyl ether | | | | | |
| Bromoform | | | | | |
| 1,1,2,2-Tetrachloroethane | | | | | |
| Tetrachloroethylene | | | | | |
| Chlorobenzene | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |

VOA RESULTS

| | | | |
|---------------------------|----------------------------------|-------------------------|--|
| LAB # | | SYSTEM SERIAL | |
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/11/86 ANALYST: JSC INSTRUMENT: QEL |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | No |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # <u>NABENT BUNK</u> | | | |
|---------------------------|----------------------------------|---------------------|--|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>7/1/76</u> ANALYST: <u>CJ</u> INSTRUMENT: <u>Deli</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | <u>112</u> |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichlorethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601 Bromochloromethane _____
 2-Bromo-1-Chloropropane _____
 1,4-Dichlorobutane _____

602 a,a,a,-Trifluorotoluene _____

VOA RESULTS

| LAB # | | SYSTO BOWL | |
|---------------------------|----------------------------------|-------------------------|--|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 5/10/86 ANALYST: JSS INSTRUMENT: ADR |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | N? |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # <u>11-22-2011</u> | | | |
|---------------------------|----------------------|-----------------------|----------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| DATE: _____ | | DATE: <u>2/10/11</u> | |
| ANALYST: _____ | | ANALYST: <u>RP</u> | |
| INSTRUMENT: _____ | | INSTRUMENT: <u>Q1</u> | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | <u>N/D</u> |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601
 Bromochloromethane _____
 2-Bromo-1-Chloropropane _____
 1,4-Dichlorobutane _____

602
 a,a,a,-Trifluorotoluene _____

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/11/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | Z RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | a | | | G | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 32.3 | | | 105 | | |
| | Toluene | 4.1 | 3.9 | | | 96 | | |
| | Ethylbenzene | 11.5 | 10.2 | | | 89 | | |
| | P-Xylene | 19.1 | 19.0 | | | 100 | | |
| | M-Xylene | 42.6 | 43.2 | | | 102 | | |
| | O-Xylene | 10.6 | 9.7 | | | 91 | | |
| | | | | | | | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| DATE: 2/12/76 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 34.8 | | | 113 | | |
| | Toluene | 4.1 | 4.5 | | | 110 | | |
| | Ethylbenzene | 11.5 | 11.2 | | | 97 | | |
| | P-Xylene | 19.1 | 20.8 | | | 109 | | |
| | M-Xylene | 42.6 | 46.6 | | | 109 | | |
| | O-Xylene | 10.6 | 10.5 | | | 99 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| DATE: 2/10/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | Z RECOVERY | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|----|--|
| INSTRUMENT | | | D | ✓ | | D | C | |
| ANALYST | | | C | AP | | C | AP | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 34.2 | | | 112 | | |
| | Toluene | 4.1 | 4.4 | | | 108 | | |
| | Ethylbenzene | 11.5 | 11.0 | | | 96 | | |
| | P-Xylene | 19.1 | 20.3 | | | 107 | | |
| | M-Xylene | 42.6 | 45.8 | | | 108 | | |
| | O-Xylene | 10.6 | 10.3 | | | 97 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | 55.4 | | | 94 | |
| | Aroclor 1260 | 56.8 | | 54.5 | | | 96 | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/16/86

G/B

G/B

| | CERTIFIED VALUE (mg/L) | ANALYZED VALUE | 2nd |
|---------------------------|------------------------------|-------------------|-----------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 10.2 / 9.6 | 112 / 105 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 10.9 / 7.9 | 109 / 79 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 47.1 / 45.8 | 110 / 107 |
| 1,2-Dichloroethane | 27.6 | 42.9 / 22.3 | 156 / 81 |
| 1,1,1-Trichloroethane | 14.3 | 15.0 / 13.9 | 105 / 97 |
| Carbon tetrachloride | 22.0 | 21.2 / 17.1 | 106 / 85 |
| Bromodichloromethane | 7.9 | 9.2 / 7.9 | 116 / 100 |
| 1,2-Dichloropropane | 8.0 | 9.8 / 8.6 | 123 / 108 |
| Trichloroethene | 22.2 | 26.7 / 20.8 | 120 / 94 |
| Dibromochloromethane | 16.7 | 18.7 / 16.4 | 112 / 98 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 10.8 / 8.9 | 109 / 90 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 10.1 / 9.7 | 123 / 118 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|-----------------|--|--|
| DATE: 2/13/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | = % RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | G | | | G | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 34.4 | | | 112 | | |
| | Toluene | 4.1 | 4.9 | | | 119 | | |
| | Ethylbenzene | 11.5 | 11.8 | | | 102 | | |
| | P-Xylene | 19.1 | 20.5 | | | 108 | | |
| | M-Xylene | 42.6 | 44.3 | | | 104 | | |
| | O-Xylene | 10.6 | 10.6 | | | 100 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/12/86

| | CERTIFIED VALUE (mg/L) | B / G ANALYZED VALUE | B / G Q / R |
|---------------------------|------------------------------|----------------------------|----------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 8.5 / 10.0 | 92 / 109 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.6 / 8.1 | 86 / 81 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 45.2 / 58.0 | 105 / 135 |
| 1,2-Dichloroethane | 27.6 | 20.0 / 23.5 | 72 / 85 |
| 1,1,1-Trichloroethane | 14.3 | 13.8 / 15.3 | 96 / 107 |
| Carbon tetrachloride | 20.0 | 18.8 / 16.5 | 94 / 83 |
| Bromodichloromethane | 7.9 | 7.4 / 7.3 | 94 / 92 |
| 1,2-Dichloropropane | 8.0 | 6.6 / 8.4 | 82 / 105 |
| Trichloroethene | 22.2 | 19.7 / 22.7 | 89 / 102 |
| Dibromochloromethane | 16.7 | 14.3 / 14.9 | 86 / 89 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 7.2 / 8.9 | 72 / 90 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 7.9 / 7.6 | 96 / 93 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SPIKE RECOVERY

EPA Method 602

Volatile Organics

SAMPLE # 8602041-01C

UNITS PART 4
860206

2/10/86

NP

0

SPILL C

5m

COMPOUND

SSR

SR

SA

ZR

Benzene

31.7

30.7

103

Toluene

5.0

4.1

.122

Ethyl benzene

10.3

11.5

90

1,4-Dichlorobenzene

1,3-Dichlorobenzene

1,2-Dichlorobenzene

O-Xylene

9.3

10.6

88

M-Xylene

42.3

42.6

99

P-Xylene

18.8

19.1

98

Chlorobenzene

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

DUPLICATE ANALYSIS

| EPA Method 601 Volatile Organics | | | | | | |
|-------------------------------------|-------|-------|-----|-------|-------|-----|
| COMPOUND <i>ug/l</i> | RUN#1 | RUN#2 | RPD | RUN#1 | RUN#2 | RPD |
| Chloromethane | ND | ND | NC | | | |
| Bromomethane | | | | | | |
| Vinyl chloride | | | | | | |
| Chloroethane | | | | | | |
| Methylene chloride | | | | | | |
| Trichlorofluoromethane | | | | | | |
| 1,1-Dichloroethene | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| trans-1,2-Dichloroethene | | | | | | |
| Chloroform | | | | | | |
| 1,2-Dichloroethane | | | | | | |
| 1,1,1-Trichloroethane | | | | | | |
| Carbon Tetrachloride | | | | | | |
| Bromodichloroemethane | | | | | | |
| 1,2-Dichloropropane | | | | | | |
| Trichloroethene | | | | | | |
| Dibromochloromethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| cis-1,2-Dichloropropene | | | | | | |
| 2-Chloroethylvinyl ether | | | | | | |
| Bromoform | | | | | | |
| 1,1,2,2-Tetrachlorethane | | | | | | |
| Tetrachlorethylene | | | | | | |
| Chlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD = Relative Percent Difference

DUPLICATE ANALYSIS

EPA METHOD 602

VOLATILE ORGANICS

SAMPLE # 8602041-06C

UNITS ug/l.
860135

| COMPOUND | RUN#1 | RUN#2 | RPD |
|---------------------|-------|-------|-----|
| Benzene | ND | ND | NC |
| Toluene | | | |
| Ethyl benzene | | | |
| 1,4-Dichlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| O-Xylene | | | |
| M-Xylene | | | |
| P-Xylene | | | |
| Chlorobenzene | ✓ | ✓ | ✓ |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD= Relative Percent Difference

DUPLICATE ANALYSIS

EPA METHOD 602

VOLATILE ORGANICS

SAMPLE # 8002041-07B

UNITS ug/l

FIELD BLANK

| COMPOUND | RUN#1 | RUN#2 | RPD |
|---------------------|-------|-------|-----|
| Benzene | | | |
| Toluene | 2.19 | 2.14 | 2.3 |
| Ethyl benzene | | | |
| 1,4-Dichlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| O-Xylene | | | |
| M-Xylene | | | |
| P-Xylene | | | |
| Chlorobenzene | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD= Relative Percent Difference

SURROGATE RECOVERIES

LAB # 8602041-01A

SAMPLE ID: 8601210

DATE: 2-11-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 102%, 93%

2-BROMO-1-CHLOROPROPANE: 108%, 89%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602041-02A

SAMPLE ID: 860130

DATE: 2-11-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 97%

2-BROMO-1-CHLOROPROPANE: 18%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602041-03A

SAMPLE ID: 860131

DATE: 2-12-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 114%

2-BROMO-1-CHLOROPROPANE: 123%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8608041-04A

SAMPLE ID: 860132

DATE: 2-12-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 96%

2-BROMO-1-CHLOROPROPANE: 100%

602/8020

a, a, a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8002041-05A

SAMPLE ID: 800134

DATE: 2-12-86

INSTRUMENT: 4

601/8010

BROMOCHLOROMETHANE: 105%

2-BROMO-1-CHLOROPROPANE: 114%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602041-06A

SAMPLE ID: 860135

DATE: 2-12-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 102%

2-BROMO-1-CHLOROPROPANE: 124%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602041-07A

SAMPLE ID: FIELD BLANK

DATE: 2-12-80

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 108%

2-BROMO-1-CHLOROPROPANE: 98%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602041-08F

SAMPLE ID: TRIP BLANK

DATE: 2-12-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 118%

2-BROMO-1-CHLOROPROPANE: 102%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8603041-01C

SAMPLE ID: 8601010

DATE: 2-10-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 112%

SURROGATE RECOVERIES

LAB #: 8608041-02C

SAMPLE ID: 8600130

DATE: 2-10-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 95%

SURROGATE RECOVERIES

LAB #: 8606041-03C

SAMPLE ID: 860131

DATE: 2-10-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 910%

SURROGATE RECOVERIES

LAB #: 8603041-04C

SAMPLE ID: 860132

DATE: 2-10-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 94/6/0

SURROGATE RECOVERIES

LAB #: 8602041-05C

SAMPLE ID: 860134

DATE: 2-10-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 91% _____

SURROGATE RECOVERIES

LAB #: 81002041-060

SAMPLE ID: 8100135

DATE: 2-1-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a, a, a-TRIFLUOROTOLUENE: 1040%, 1010%

SURROGATE RECOVERIES

LAB #: 8008041-07B

SAMPLE ID: FIELD BLANK

DATE: 2-11-86 / 2-13-86

INSTRUMENT: D/D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a, a, a-TRIFLUOROTOLUENE: 101%, 102%

AD-A198 445

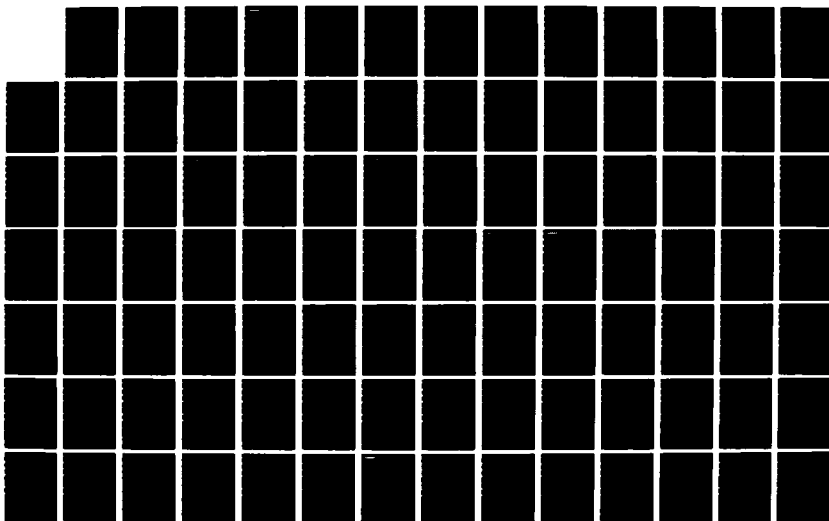
INSTALLATION RESTORATION PROGRAM PHASE 2
CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP
AUSTIN TX DEC 87 F33615-83-D-4881

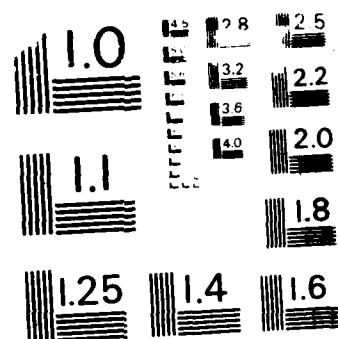
4/6

UNCLASSIFIED

F/G 24/7

ML





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1963-A

SURROGATE RECOVERIES

LAB #: 86002041-18A

SAMPLE ID: TRIP BLANK

DATE: 2-12-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 98%

RADIAN
CORPORATION

SACTO.

EPA 625 (860136, 860137, 860138
860139, 860140

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address General Dynamics - Fort Worth, Plant 4
Sample Point Description Ground water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name ART MORRILL NEW ROBINSON Date/Time Sampled 2-7-86

Amount of Sample Collected NINE 1000 ML. AMBER GLASS

Sample Description Ground water

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☒ Shock sensitive

☐ Acidic

☐ Biological

☐ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RADIAN CORP.

Received By _____ Date Received _____ Time _____

Transported By Arthur Morrill Lab Sample No. 86-02-001

Comments _____

Inclusive Dates of Possession 2-7-86

Organization Name Radian Analytical Services

Received By Ramsey Date Received 2-8-86 Time 11:00

Transported By Federal Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

AUSTIN

RADIAN
CORPORATION

CHROMIUM-860136, 860140

EPA 601-860136, 860137, 860138, 860139, 860140

EPA 602-860136, 860137, 860138, 860139, 860140

EPA 603-METALS-860136, 860137, 860138, 860139, 860140

CHAIN OF CUSTODY RECORD

OIL + GREASE-860136, 860140

FIELD BLANKS EPA 601; EPA 602 + ONE TRIP BLANK Field Sample No. _____

Company Sampled/Address GENERAL DYNAMICS - FORT WORTH, PLANT FOUR

Sample Point Description GROUND WATER

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name A. MORRIS N. ROBINSON Date/Time Sampled 2-7-86

Amount of Sample Collected (4) 1 QT MASON JARS (7) 500ml plastic (23) twenty three

Sample Description fuel VOAS

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name RADIAN CORP.

Received By _____ Date Received _____ Time _____

Transported By Arthur Morille Lab Sample No. _____

Comments _____

Inclusive Dates of Possession 2-7-86

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Volatile Organics

Report 3

GC 9A/9c
DETECTION LIMITS

8602047-01-07

| METHOD 601 | METHOD | | |
|--------------------------|---------------|--------|------|
| | DETECTION | | |
| COMPOUND | LIMIT | | |
| | ug/lr | | |
| | -02 -05-07 | -01-04 | -03 |
| Chloromethane | 0.08 | 20.0 | 80.0 |
| Bromomethane | 1.18 | 295 | 1180 |
| Vinyl Chloride | 0.18 | 30 | 180 |
| Chloroethane | 0.52 | 130 | 520 |
| Methylene Chloride | 0.25 | 62.5 | 250 |
| Trichlorofluoromethane | 0.10 | 25.0 | 100 |
| 1,1-Dichloroethene | 0.13 | 32.5 | 130 |
| 1,1-Dichloroethane | 0.07 | 17.5 | 70.0 |
| Trans-1,2-Dichloroethene | 0.10 | 25.0 | 100 |
| Chloroform | 0.05 | 12.5 | 50.0 |
| 1,2-Dichloroethane | 0.03 | 7.5 | 30.0 |
| 1,1,1-Trichloroethane | 0.03 | 7.5 | 30.0 |
| Carbon Tetrachloride | 0.12 | 30.0 | 120 |
| Bromodichloromethane | 0.10 | 25.0 | 100 |
| 1,2-Dichloropropane | 0.04 | 10.0 | 40.0 |
| Trichloroethene | 0.12 | 30.0 | 120 |
| Dibromochloromethane | 0.09 | 22.5 | 90.0 |
| 2-Chloroethylvinyl Ether | 0.13 | 32.5 | 130 |
| Bromoform | 0.20 | 50.0 | 200 |
| Tetrachloroethene | 0.03 | 7.5 | 30.0 |
| Chlorobenzene | 0.25 | 62.5 | 250 |
| 1,3-Dichlorobenzene | 0.32 | 80.0 | 320 |
| 1,2-Dichlorobenzene | 0.15 | 37.5 | 150 |
| 1,4-Dichlorobenzene | 0.24 | 60.0 | 240 |

DETECTION LIMITS

VOLATILE ORGANICS

METHOD 602

| COMPOUND | DETECTION LIMIT <i>ug/l</i> | | | | | |
|---------------------|-----------------------------|------------|------------|------------|-------------|-------------|
| | <i>0.2</i> | <i>0.5</i> | <i>1.0</i> | <i>5.0</i> | <i>10.0</i> | <i>10.0</i> |
| BENZENE | 0.2 | 5.0 | 10.0 | | | |
| TOLUENE | 0.2 | 5.0 | 10.0 | | | |
| ETHYLBENZENE | 0.2 | 5.0 | 10.0 | | | |
| CHLOROBENZENE | 0.2 | 5.0 | 10.0 | | | |
| 1,4-DICHLOROBENZENE | 0.3 | 7.5 | 15.0 | | | |
| 1,3-DICHLOROBENZENE | 0.4 | 10.0 | 20.0 | | | |
| 1,2-DICHLOROBENZENE | 0.4 | 10.0 | 20.0 | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

VOA RESULTS

| LAB # | | SYSTEM BUNK | |
|---------------------------|---|-------------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/13/96 ANALYST: JSC INSTRUMENT: Aermatic | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | N/A | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethane | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | SURROGATE RECOVERIES: | |
| 1,1,1-Trichloroethane | | 601 | |
| Carbon tetrachloride | | Bromochloromethane | |
| Bromodichlormethane | | 2-Bromo-1-Chloropropane | |
| 1,2-Dichloropropane | | 1,4-Dichlorobutane | |
| Trans-1,3-Dichloropropene | | 602 | |
| Trichloroethene | | a,a,a,-Trifluorotoluene | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # <u>URGENT BANK</u> | | | |
|----------------------------|----------------------|---------------------|----------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| DATE: <u>2/13/72</u> | | DATE: _____ | |
| ANALYST: <u>C</u> | | ANALYST: _____ | |
| INSTRUMENT: <u>Summitt</u> | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>NP</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601

Bromochloromethane _____

2-Bromo-1-Chloropropane _____

1,4-Dichlorobutane _____

602

a,a,a,-Trifluorotoluene _____

VOA RESULTS

| EPA METHOD 601 | | DATE: 2/12/86 ANALYST: SSZ INSTRUMENT: Beckman 422 | | EPA METHOD 602 | | DATE: ANALYST: INSTRUMENT: | |
|---------------------------|----------------------|--|----------------------|----------------|----------------------|----------------------------------|----------------------|
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | | | | | |
| Bromomethane | | Toluene | | | | | |
| Vinyl Chloride | | Ethyl benzene | | | | | |
| Chloroethane | | Chlorobenzene | | | | | |
| Methylene chloride | | 1,4-Dichlorobenzene | | | | | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | | | | | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | | | | | |
| 1,1-Dichloroethane | | P-Xylene | | | | | |
| Trans-1,2-Dichloroethene | | M-Xylene | | | | | |
| Chloroform | | O-Xylene | | | | | |
| 1,2-Dichloroethane | | | | | | | |
| 1,1,1-Trichloroethane | | | | | | | |
| Carbon tetrachloride | | | | | | | |
| Bromodichloromethane | | | | | | | |
| 1,2-Dichloropropane | | | | | | | |
| Trans-1,3-Dichloropropene | | | | | | | |
| Trichloroethene | | | | | | | |
| Dibromochloromethane | | | | | | | |
| 1,1,2-Trichloroethane | | | | | | | |
| cis-1,3-Dichloropropene | | | | | | | |
| 2-Chloroethylvinyl ether | | | | | | | |
| Bromoform | | | | | | | |
| 1,1,2,2-Tetrachloroethane | | | | | | | |
| Tetrachloroethylene | | | | | | | |
| Chlorobenzene | | | | | | | |
| 1,3-Dichlorobenzene | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | |

VOA RESULTS

| LAB # _____ | | CLIENT NAME _____ | |
|---------------------------|----------------------|---------------------|----------------------|
| SAMPLE ID _____ | | DATE: _____ | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| ANALYST: _____ | | ANALYST: _____ | |
| INSTRUMENT _____ | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | SYTON BLANK | |
|---------------------------|----------------------------------|-------------------------|--|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/12/92 ANALYST: JSC INSTRUMENT: 000 |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | N/D |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---------------------------|----------------------------------|-------------------------|---|
| LAB # | | URGENT BULK | |
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/12/82 ANALYST: C INSTRUMENT: Del. |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | NB |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichloroethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | <u>SYSTEM Blank</u> | |
|----------------------------------|---|--------------------------------|----------------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: <u>4/12/82</u> ANALYST: <u>JSC</u> INSTRUMENT: <u>Hewlett</u> | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| <u>Chloromethane</u> | <u>ND</u> | <u>Benzene</u> | |
| <u>Bromomethane</u> | | <u>Toluene</u> | |
| <u>Vinyl Chloride</u> | | <u>Ethyl benzene</u> | |
| <u>Chloroethane</u> | | <u>Chlorobenzene</u> | |
| <u>Methylene chloride</u> | | <u>1,4-Dichlorobenzene</u> | |
| <u>Trichlorofluoromethane</u> | | <u>1,3-Dichlorobenzene</u> | |
| <u>1,1-Dichlorethane</u> | | <u>1,2-Dichlorobenzene</u> | |
| <u>1,1-Dichloroethane</u> | | <u>P-Xylene</u> | |
| <u>Trans-1,2-Dichloroethene</u> | | <u>M-Xylene</u> | |
| <u>Chloroform</u> | | <u>O-Xylene</u> | |
| <u>1,2-Dichloroethane</u> | | | |
| <u>1,1,1-Trichloroethane</u> | | | |
| <u>Carbon tetrachloride</u> | | | |
| <u>Bromodichlormethane</u> | | | |
| <u>1,2-Dichloropropane</u> | | SURROGATE RECOVERIES: | |
| <u>Trans-1,3-Dichloropropene</u> | | 601 | |
| <u>Trichloroethene</u> | | <u>Bromochloromethane</u> | |
| <u>Dibromochloromethane</u> | | <u>2-Bromo-1-Chloropropane</u> | |
| <u>1,1,2-Trichloroethane</u> | | <u>1,4-Dichlorobutane</u> | |
| <u>cis-1,3-Dichloropropene</u> | | 602 | |
| <u>2-Chloroethylvinyl ether</u> | | <u>a,a,a,-Trifluorotoluene</u> | |
| <u>Bromoform</u> | | | |
| <u>1,1,2,2-Tetrachlorethane</u> | | | |
| <u>Tetrachlorethylene</u> | | | |
| <u>Chlorobenzene</u> | | | |
| <u>1,3-Dichlorobenzene</u> | | | |
| <u>1,2-Dichlorobenzene</u> | | | |
| <u>1,4-Dichlorobenzene</u> | | | |

VOA RESULTS

| LAB # _____ | | CLIENT NAME _____ | |
|---------------------------|----------------------|---------------------|----------------------|
| SAMPLE ID _____ | | DATE: _____ | |
| EPA METHOD | DATE: _____ | EPA METHOD | DATE: _____ |
| 601 | ANALYST: _____ | 602 | ANALYST: _____ |
| INSTRUMENT: _____ | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---------------------------|----------------------------------|-------------------------|---|
| LAB # <u>5750-BWIL</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| ----- | | ----- | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/11/76</u> ANALYST: <u>JSC</u> INSTRUMENT: <u>QEL</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | _____ |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | _____ |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | _____ |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | _____ |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | NORCENT BUNK | |
|---------------------------|----------------------------------|-------------------------|--|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/11/86 ANALYST: E INSTRUMENT: Del |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichloroethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/12/86

| | CERTIFIED VALUE (mg/L) | B / G ANALYZED VALUE | B / G % REC |
|---------------------------|------------------------------|----------------------------|----------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 8.5 / 10.0 | 92 / 109 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.6 / 8.1 | 86 / 81 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 45.2 / 58.0 | 105 / 135 |
| 1,2-Dichloroethane | 27.6 | 20.0 / 23.5 | 72 / 85 |
| 1,1,1-Trichloroethane | 14.3 | 13.8 / 15.3 | 96 / 107 |
| Carbon tetrachloride | 20.0 | 18.8 / 16.5 | 94 / 83 |
| Bromodichloromethane | 7.9 | 7.4 / 7.3 | 94 / 92 |
| 1,2-Dichloropropane | 8.0 | 6.6 / 8.4 | 82 / 105 |
| Trichloroethene | 22.2 | 19.7 / 22.7 | 89 / 102 |
| Dibromochloromethane | 16.7 | 14.3 / 14.9 | 86 / 89 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 7.2 / 8.9 | 72 / 90 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 7.9 / 7.6 | 96 / 93 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA 82 WP 483 conc 2 + EPA 82 WP 781 conc 3

5/13/86

B / G

B / G

| | CERTIFIED VALUE (mg/L) | ANALYZED VALUE | % REC |
|---------------------------|------------------------------|-------------------|-----------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 9.0 / 10.4 | 98 / 113 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 9.8 / 10.1 | 98 / 101 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 50.8 / 52.2 | 118 / 121 |
| 1,2-Dichloroethane | 27.6 | 22.7 / 25.2 | 82 / 91 |
| 1,1,1-Trichloroethane | 14.3 | 14.4 / 15.1 | 100 / 106 |
| Carbon tetrachloride | 20.0 | 20.5 / 20.9 | 102 / 105 |
| Bromodichloromethane | 7.9 | 8.4 / 8.0 | 107 / 102 |
| 1,2-Dichloropropane | 8.0 | 8.2 / 8.5 | 103 / 106 |
| Trichloroethene | 22.2 | 21.2 / 24.6 | 95 / 110 |
| Dibromochloromethane | 16.7 | 15.8 / 13.5 | 94 / 81 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 8.3 / 9.5 | 84 / 96 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.7 / 8.6 | 107 / 105 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/12/86

| | CERTIFIED VALUE (mg/L) | B / G ANALYZED VALUE | B / G % REC |
|---------------------------|------------------------------|----------------------------|----------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 8.5 / 10.0 | 92 / 109 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.6 / 8.1 | 86 / 81 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 45.2 / 58.0 | 105 / 135 |
| 1,2-Dichloroethane | 27.6 | 20.0 / 23.5 | 72 / 85 |
| 1,1,1-Trichloroethane | 14.3 | 13.8 / 15.3 | 96 / 107 |
| Carbon tetrachloride | 20.0 | 18.8 / 16.5 | 94 / 83 |
| Bromodichloromethane | 7.9 | 7.4 / 7.3 | 94 / 92 |
| 1,2-Dichloropropane | 8.0 | 6.6 / 8.4 | 82 / 105 |
| Trichloroethene | 22.2 | 19.7 / 22.7 | 89 / 102 |
| Dibromochloromethane | 16.7 | 14.3 / 14.9 | 86 / 89 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 7.2 / 8.9 | 72 / 90 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 7.9 / 7.6 | 96 / 93 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/12/20 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 31.8 | | | 113 | | |
| | Toluene | 4.1 | 4.5 | | | 110 | | |
| | Ethylbenzene | 11.5 | 11.2 | | | 97 | | |
| | P-Xylene | 19.1 | 20.8 | | | 109 | | |
| | M-Xylene | 42.6 | 46.6 | | | 109 | | |
| | O-Xylene | 10.6 | 10.5 | | | 99 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| DATE: 2/11/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | a | | | G | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 32.3 | | | 105 | | |
| | Toluene | 4.1 | 3.9 | | | 96 | | |
| | Ethylbenzene | 11.5 | 10.2 | | | 89 | | |
| | P-Xylene | 19.1 | 19.0 | | | 100 | | |
| | M-Xylene | 42.6 | 43.2 | | | 102 | | |
| | O-Xylene | 10.6 | 9.7 | | | 91 | | |
| | | | | | | | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

SPIKE RECOVERY

| EPA METHOD 601 Volatile Organics | 8602047-05A Plant Y 860140 2/13/66 RP B | | | | | | | |
|-------------------------------------|--|----|------|-----|-----|----|----|----|
| COMPOUNDS | SSR | SR | SA | ZR | SSR | SR | SA | ZR |
| Chloromethane | | | | | | | | |
| Bromomethane | | | | | | | | |
| Vinyl chloride | | | | | | | | |
| Chloroethane | | | | | | | | |
| Methylene chloride | 7.5 | | 9.2 | 82 | | | | |
| Trichlorofluoromethane | | | | | | | | |
| 1,1-Dichloroethene | 8.6 | | 10.0 | 86 | | | | |
| 1,1-Dichloroethane | | | | | | | | |
| trans-1,2-Dichloroethene | 4.2 | | 5.4 | 77 | | | | |
| Chloroform | 50.2 | | 43.0 | 117 | | | | |
| 1,2-Dichloroethane | 20.0 | | 27.6 | 72 | | | | |
| 1,1,1-Trichloroethane | 13.2 | | 14.3 | 92 | | | | |
| Carbon Tetrachloride | 19.4 | | 20.0 | 97 | | | | |
| Bromodichloroemethane | 7.8 | | 7.9 | 99 | | | | |
| 1,2-Dichloropropane | 7.2 | | 8.0 | 97 | | | | |
| Trichloroethene | 19.1 | | 22.0 | 89 | | | | |
| Dibromochloromethane | 8.0 | | 16.7 | | | | | |
| 1,1,2-Trichloroethane | | | | | | | | |
| cis-1,2-Dichloropropene | | | | | | | | |
| 2-Chlorethylvinyl ether | | | | | | | | |
| Bromoform | 8.5 | | 9.9 | 86 | | | | |
| 1,1,2,2-Tetrachlorethane | | | 10.0 | | | | | |
| Tetrachlorethylene | | | 6.2 | | | | | |
| Chlorobenzene | 8.9 | | 8.0 | 111 | | | | |
| 1,3-Dichlorobenzene | | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | | |

SSR = Spiked Sample Result

5 251

SR = Sample Result

SA = Spike Added

SPIKE RECOVERY

EPA Method 602
Volatile Organics

2/11/2
RP
D

8602047-03C
SAMPLE #
UNITS PUMP 4 1.50
860138

| COMPOUND | SSR | SR | SA | ZR |
|---------------------|------|----|------|-----|
| Benzene | 32.3 | | 30.7 | 105 |
| Toluene | 5.7 | | 4.1 | 138 |
| Ethyl benzene | 13.0 | | 11.5 | 113 |
| 1,4-Dichlorobenzene | | | | |
| 1,3-Dichlorobenzene | | | | |
| 1,2-Dichlorobenzene | | | | |
| O-Xylene | 11.8 | | 10.6 | 112 |
| M-Xylene | 57.2 | | 42.6 | 120 |
| P-Xylene | 23.3 | | 19.1 | 118 |
| Chlorobenzene | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

SURROGATE RECOVERIES

LAB #: 8605047-DIA

SAMPLE ID: 800136

DATE: 2-12-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 91%

2-BROMO-1-CHLOROPROPANE: 100%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602047-02A

SAMPLE ID: 860137

DATE: 2-12-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 111%

2-BROMO-1-CHLOROPROPANE: 138%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 86002047-03A

SAMPLE ID: 8600138

DATE: 2-12-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 86%

2-BROMO-1-CHLOROPROPANE: 105%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8606047-104A

SAMPLE ID: 860139

DATE: 2-13-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 95%

2-BROMO-1-CHLOROPROPANE: 100%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8608047-05A

SAMPLE ID: 860140

DATE: 2-13-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 123%

2-BROMO-1-CHLOROPROPANE: 118%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8605047-06A

SAMPLE ID: FIELD BLANK

DATE: 2-13-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 98%

2-BROMO-1-CHLOROPROPANE: 111%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602047-07A

SAMPLE ID: TRIP BLANK

DATE: 2-12-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 119%

2-BROMO-1-CHLOROPROPANE: 119%

602/8020

a, a, a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602017-C1C

SAMPLE ID: 860136

DATE: 2-11-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 98%

SURROGATE RECOVERIES

LAB #: 8602047-02C

SAMPLE ID: 860137

DATE: 2-11-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 100%

SURROGATE RECOVERIES

LAB #: 8605047-03C

SAMPLE ID: 860138

DATE: 2-11-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 100%

SURROGATE RECOVERIES

LAB #: 86002047-04C

SAMPLE ID: 8600139

DATE: 2-11-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 48%

SURROGATE RECOVERIES

LAB #: 8602047-05C

SAMPLE ID: 860140

DATE: 2-11-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 114%

SURROGATE RECOVERIES

LAB #: 8602047-06B

SAMPLE ID: FIELD BLANK

DATE: 2-17-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 103%

SURROGATE RECOVERIES

LAB #: 8005047-07A

SAMPLE ID: TRIP BLANK

DATE: 2-12-80

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 104%

Report 3

PLANT 4

86-02-047

samples 01-05 (metals)

samples 01, 05 oil/gene, HC

UNITS

ug/ml

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|----------------|-------|-------|------|--------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP ¹ | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R |
| As | 2-19-86 | .039 | .040 | 98 | an dup | <.005 | <.005 | NC | an sp | <.005 | .022 | .024 | 98 |
| | idl = .005 | .035 | .040 | 88 | dig dup | .078 | .078 | 8.0 | dig sp | .007 | .021 | .020 | 70 |
| | | .036 | .040 | 90 | | | | | | | | | |
| Hg | 2-10-86 | .0054 | .0050 | 108 | dig dup | <.002 | <.002 | NC | dig sp | <.002 | .022 | .020 | 110 |
| | idl = .0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | .0040 | .0040 | 100 | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup | .025 | .025 | 0 | an sp | .025 | .047 | .024 | 92 |
| | idl = .002 | .048 | .045 | 107 | dig dup | .008 | .007 | 13 | dig sp | .20 | .24 | .024 | 167 |
| | | .047 | .045 | 104 | | | | | | | | | |
| Se | 2-25-86 | .041 | .040 | 103 | an dup | <.003 | <.003 | NC | an sp | <.003 | .021 | .024 | 88 |
| | idl = .003 | .036 | .040 | 90 | dig dup | <.003 | <.003 | NC | dig sp | <.003 | <.003 | .010 | 0 |
| | | .034 | .040 | 85 | | | | | | | | | |
| oil and grease | 2-14-86 | .043 | .040 | 108 | | | | | | | | | |
| | | .197 | .200 | 99 | | | | | | | | | |
| | idl = 1 | .197 | .200 | 99 | | | | | | | | | |

an dup=analytical duplicate an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike

idl = instrument detection limit *value is less than five times the instrument detection limit NC=not calculable

1) sample result is greater than 5x spike added concentration; in this situation, the spike is sometimes out of the recovery range

Report 3

PLANT 4

86-02-176

nitrate (samples 01-06)

PC DATA - AD, DU & REUSE

UNITS

µg/lml

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|--------------|---------------|-------------|------------|-----|--------------------|--------|------|-----------------------------------|------------------|--------|--------|-------|---------------------------|------------------------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 3-12-86 | 0.025 | 0.027 | 93 | | | | | an sp 176-03g | <.003 | 0.026 | 0.024 | 108 | dig bl <.003 cal bl <.003 |
| | idl=.003 | 0.040 | 0.040 | 100 | | | | | | | | | | |
| | | 0.044 | 0.040 | 110 | | | | | | | | | | |
| Hg | 3-7-86 | 0.0023 | 0.0025 | 92 | dig dup 176-04 | <.0002 | NIC | dig sp 176-05 | <.0002 | 0.0008 | 0.0010 | 80 | dig bl <.0002 | |
| | idl=.0002 | 0.0021 | 0.0025 | 84 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Pb | 3-11-86 | 0.042 | 0.043 | 98 | | | | an sp 176-05g | <.001 | 0.013 | 0.024 | 54 | dig bl 0.004* | |
| | idl=.001 | 0.046 | 0.043 | 107 | | | | an sp 1:10 dilution 176-05g | <.001 | 0.021 | 0.024 | 88 | cal bl <.001 | |
| | | 0.045 | 0.043 | 105 | | | | | | | | | | |
| Se | 3-11-86 | 0.049 | 0.050 | 98 | | | | an sp 176-03g | <.003 | 0.018 | 0.024 | 75 | dig bl <.003 cal bl | |
| | idl=.003 | 0.046 | 0.050 | 92 | | | | an sp 176-03g | <.003 | 0.024 | 0.024 | 100 | <.003 cal bl <.003 | |
| | | | | | | | | 1:10 dilution | | | | | | |
| OIL & GREASE | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an dup=analytical duplicate an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike

idl = instrument detection limit *value is less than five times the instrument detection limit NC=not calculable

Report 3

Plant 4

Radon No. 8602197

QC DATA - AA,

UNITS ug/ml

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|---------|---------------|-------------|------------|-----|--------------------|-------|--------|-----|----------------|----|--------|------|--------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R |
| Hg | 3-9-86 | .22 ug | .25 ug | 88 | -06 | .0002 | <.0002 | NC | -06 | ** | <.0002 | .010 | 110 |
| | 10L: .0002 | .20 ug | .20 ug | 100 | | | | | | | | | |
| | | .20 ug | .20 ug | 100 | | | | | | | | | |
| Pb | 3-12-86 | .047 | .045 | 104 | -01 | .22 | .22 | 0 | -01 (1.10) | * | .022 | .024 | 79 |
| | 10L: .002 | .045 | .045 | 100 | -01 | .22 | .27 | 30 | -01 (1.20) | * | .011 | .024 | 79 |
| | | .045 | .045 | 100 | | | | | -02 | ** | .0099 | .020 | 51 |
| Se | 3-12-86 | .047 | .050 | 94 | -01 | <.003 | <.003 | NC | -02 | ** | <.003 | .010 | 0 |
| | 10L: .003 | .043 | .050 | 86 | | | | | -02 | * | <.003 | .034 | 29 |
| | | | | | | | | | -02 (1.10) | * | <.003 | .024 | 71 |
| As | 3-17-86 | .028 | .027 | 104 | -01 | .16 | .092 | 54 | -02 | ** | .005 | .020 | 85 |
| | 10L: .002 | .042 | .040 | 105 | | | | | -02 | * | .005 | .024 | 96 |
| | | .042 | .040 | 105 | | | | | | | | | |
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$$RPD = [(S-D)/((S+D)/2)] \times 100$$

RPD=relative percent difference

$$Spike \%R = [(SSR-SR)/SA] \times 100$$

* analytical
** digestion1. Due to low recovery
sample was diluted 10x
repeated. matrix interference possible.

Report 3

UNITS $\mu\text{g/ml}$

SAM # - 8603004 Plant 4 QC DATA - AT, OIL AND GREASE

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|---------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|------------------|------|-------|------|-----|---------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP # | SAMP | DUPL | RPD | SAMP # | SR | SSR | SA | %R | |
| Pb | 3-11-86 | .042 | .043 | 98 | -03** | .022 | .019 | 15 | -08* | .019 | <.001 | .024 | 79 | 004** |
| | | .046 | .043 | 107 | -10* | .016 | .014 | 13 | | | | | | <.001* |
| Hg | 3-9-86 | .22 ug | .25 ug | 88 | -10* | <.002 | <.002 | NC | -10 | .11 | <.002 | .10 | 110 | <.002** |
| | | .20 ug | .20 ug | 100 | | | | | | | | | | |
| As | 3-13-86 | .025 | .027 | 93 | -03** | <.005 | <.005 | NC | -04** | .020 | <.005 | .020 | 100 | <.005** |
| | | .041 | .040 | 103 | | | | | -06* | .020 | <.005 | .024 | 83 | <.005* |
| | | | | | | | | | * -06(1:1000) | .021 | <.005 | .024 | 88 | |
| Se | 3-11-86 | .049 | .050 | 98 | -03 | <.003 | <.003 | NC | -03 | .020 | <.003 | .024 | 83 | <.003 |
| | | | | | | | | | -03(1:1000) | .024 | <.003 | .024 | 100 | <.003 |
| | | | | | | | | | | | | | | |
| 0.5G | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
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* analytical
** - digestion

Form VI

Q. C. Report No. 3

DUPLICATES

LAB NAME RadianDATE 3-31-86CASE NO. Plant 4
8602047-01EPA Sample No. pretreatmentLab Sample ID No. pretreatmentUnits ug/mlMatrix water

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD ² |
|---------------|----------------------------|-----------|--------------|------------------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | 0.099 | 0.098 | 1.0 |
| 5. Beryllium | | | | |
| 6. Cadmium | | <0.002 | <0.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | *0.018 | *0.018 | 0 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | *0.006 | *0.006 | 0 |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| | | | | |
| Cyanide | | | | |

* Out of Control

To be added at a later date.

$$^2 \text{ RPD} = [(S - D) / ((S + D) / 2)] \times 100$$

¹ - Non calculable RPD due to value(s) less than CRDL

* indicates value is less than 5 x idl

Form VI
Q. C. Report No. 3
DUPLICATES

LAB NAME Radian
DATE 3-31-86

Plant 4
CASE NO. 8602047-04
EPA Sample No. —
Lab Sample ID No. analytical
Units ug/ml

Matrix water

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD- |
|---------------|----------------------------|-----------|--------------|------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | 0.519 | 0.519 | 0 |
| 5. Beryllium | | | | |
| 6. Cadmium | | <0.002 | <0.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | 0.031 | 0.031 | 0 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | 0.015 | 0.015 | 0 |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

* Out of Control

To be added at a later date.

$$^2 \text{ RPD} = [(S - D) / ((S + D) / 2)] \times 100$$

¹ - Non calculable RPD due to value(s) less than CRDL

Form V

Q. C. Report No. 3

SPIKE SAMPLE RECOVERY

LAB NAME RadianDATE 3-31-86CASE NO. Plant 4
8602047-03

EPA Sample No.

Lab Sample ID No. analyticalUnits ug/mlMatrix water

| Compound | Control Limit ZR | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | ZR ¹ |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | - | | | | |
| 3. Arsenic | - | | | | |
| 4. Barium | - | 1.034 | 0.101 | 1.0 | 93 |
| 5. Beryllium | - | | | | |
| 6. Cadmium | - | 0.868 | <0.002 | 1.0 | 87 |
| 7. Calcium | - | | | | |
| 8. Chromium | - | 0.930 | *0.007 | 1.0 | 92 |
| 9. Cobalt | - | | | | |
| 10. Copper | - | | | | |
| 11. Iron | - | | | | |
| 12. Lead | - | | | | |
| 13. Magnesium | - | | | | |
| 14. Manganese | - | | | | |
| 15. Mercury | - | | | | |
| 16. Nickel | - | | | | |
| 17. Potassium | - | | | | |
| 18. Selenium | - | | | | |
| 19. Silver | - | 0.964 | *0.004 | 1.0 | 96 |
| 20. Sodium | - | | | | |
| 21. Thallium | - | | | | |
| 22. Tin | - | | | | |
| 23. Vanadium | - | | | | |
| 24. Zinc | - | | | | |
| Other: | | | | | |
| | | | | | |
| Cyanide | - | | | | |

¹ ZR = [(SSR - SR)/SA] x 100

"R" - out of control

Comments: * indicates value is less than 5xidl

Form V

Q. C. Report No. 3

SPIKE SAMPLE RECOVERY

Plant 4LAB NAME RadianCASE NO. 8602047-02DATE 3-31-86EPA Sample No. -
Lab Sample ID No. predigestionUnits ug/mlMatrix water

| Compound | Control Limit ZR | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | ZR ¹ |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | - | | | | |
| 3. Arsenic | - | | | | |
| 4. Barium | - | 1.824 | 0.149 | 2.0 | 84 |
| 5. Beryllium | - | | | | |
| 6. Cadmium | - | 0.033 | <0.002 | 0.05 | 166 |
| 7. Calcium | - | | | | |
| 8. Chromium | - | 0.203 | 0.042 | 0.20 | 81 |
| 9. Cobalt | - | | | | |
| 10. Copper | - | | | | |
| 11. Iron | - | | | | |
| 12. Lead | - | | | | |
| 13. Magnesium | - | | | | |
| 14. Manganese | - | | | | |
| 15. Mercury | - | | | | |
| 16. Nickel | - | | | | |
| 17. Potassium | - | | | | |
| 18. Selenium | - | | | | |
| 19. Silver | - | 0.207 | *0.007 | 0.25 | 80 |
| 20. Sodium | - | | | | |
| 21. Thallium | - | | | | |
| 22. Tin | - | | | | |
| 23. Vanadium | - | | | | |
| 24. Zinc | - | | | | |
| Other: | | | | | |
| | | | | | |
| Cyanide | - | | | | |

¹ ZR = [(SSR - SR)/SA] x 100

"R" - out of control

Comments: * indicates that value is less than 5 x idl

for work order
86-02-047
86-02-176
86-02-197
86-03-004

Form II pg 2

Q. C. Report No. 3

INITIAL AND CONTINUING CALIBRATION VERIFICATION³

LAB NAME Radian

CASE NO. Plant 4

SOW NO. _____

DATE 3-31-86

UNITS µg/ml

Compound

Initial Calib.¹

Continuing Calibration²

| Metals: | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | Method ⁴ |
|---------------|------------|-------|----|------------|-------|-----|-------|-----|---------------------|
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | | | | 1.00 | 0.99 | 99 | 0.99 | 99 | P |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | | | | 1.00 | 1.00 | 100 | 1.00 | 100 | P |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | | | | 1.00 | 0.99 | 99 | 0.99 | 99 | P |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | | | | 1.00 | 0.99 | 99 | 1.00 | 100 | P |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____

² Continuing Calibration Source _____

³ Control Limits: Mercury and Tin. 80-120; All Other Compounds 90-110

⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

ICP QC DATA - PLANT 4

for work orders:

86-02-047

86-02-176

86-02-197

86-03-004

Form II 89¹Q. C. Report No. 3INITIAL AND CONTINUING CALIBRATION VERIFICATION³LAB NAME RadiationCASE NO. Plant 4

SOW NO. _____

DATE 3-31-86UNITS µg/ml

Compound

Initial Calib.¹Continuing Calibration²

| Metals ⁴ | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | Method ⁴ |
|---------------------|------------|-------|----|------------|-------|-----|-------|-----|---------------------|
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | 1.00 | 0.99 | 99 | 1.00 | 0.98 | 98 | 0.99 | 99 | P |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | 1.00 | 0.98 | 98 | 1.00 | 0.99 | 99 | 1.02 | 102 | P |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | 1.00 | 0.98 | 98 | 1.00 | 0.99 | 99 | 1.01 | 101 | P |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | 1.00 | 0.98 | 98 | 1.00 | 1.01 | 101 | 1.00 | 100 | P |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____² Continuing Calibration Source _____³ Control Limits: Mercury and Tin. 80-120; All Other Compounds 90-110⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

for work orders:
8602047, 8602176
8602197 & 8603004

Form III

Q. C. Report No. 3

BLANKS

LAB NAME Radcon

CASE NO. Plant 4

DATE 3-31-86

UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration Blank Value | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|---------------------------------------|------------------------|---|---|---|-------------------|---|
| | | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | for 8603004 | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | | | | | | <0.002 | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | | | | | | <0.002 | |
| 7. Calcium | | | | | | | |
| 8. Chromium | | | | | | <0.005 | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | | | | | | <0.002 | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| | | | | | | | |
| Cyanide | | | | | | | |

for work orders:
8602047, 8602176,
8602197, 8603004

Form III

Q. C. Report No. 3

BLANKS

LAB NAME Radium

CASE NO. Plant 4

DATE 3-31-86

UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|------------------------|------------------------|--------|--------|--------|-------------------|----------------|
| | Blank Value | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | for 8602047 | for 8602197 |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | <0.001 | *0.002 | <0.001 | <0.001 | <0.001 | <0.001 | *0.002 |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| 7. Calcium | | | | | | | |
| 8. Chromium | <0.005 | *0.010 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | <0.002 | 0.025 | 0.013 | *0.005 | *0.010 | <0.002 | <0.002 |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

SALTO.

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address General Dynamics - Fort Worth, Plant 4
Sample Point Description Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name N. Robinson, A. Merrill Date/Time Sampled 2-10-86

Amount of Sample Collected Eight 1000 ml. Amber Glass

Sample Description Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name Radian Corp.

Received By _____ Date Received _____ Time _____

Transported By Arthur Merrill Lab Sample No. 86-0141-005

Comments _____

Inclusive Dates of Possession 2-10-86

Organization Name Radian Analytical Services

Received By C. Rasmussen Date Received 2-11-86 Time 10:45

Transported By Federal Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

AUSTIN
RADIAN
CORPORATION

CHROMIUM - 860142
860141 860143

EPA 601 - 860141, 860142, 860143, 860146
EPA 602 - 860141, 860142, 860143, 860146
Metals 860141, 860146, 860142, 860143

CHAIN OF CUSTODY RECORD
Hydrocarbons 860141, 860143, 860145, 860142
OIL & GREASE 860143, 860141, 860142 Field Sample No. _____

Company Sampled/Address

Sample Point Description

Stream Characteristics:

Temperature _____

Flow _____

pH _____

Visual Observations/Comments _____

Collector's Name N. Robinson, A. Morrill

Date/Time Sampled

2-10-86

Amount of Sample Collected (6) 40 ml glass (1) 500 ml plastic, (1) MASON JARS

Sample Description Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ - 10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name

Radian Corp.

Received By

Arthur Morrill

Date Received

Time

Transported By

Lab Sample No.

86-02-000

Comments _____

Inclusive Dates of Possession

2-10-86

Organization Name

Received By

Date Received

Time

Transported By

Lab Sample No.

Comments _____

Inclusive Dates of Possession _____

Organization Name

Received By

Date Received

Time

Transported By

Lab Sample No.

Comments _____

Inclusive Dates of Possession _____

PLANT 4 86-01-240 samples 01-09

FOR W.O. 86-02-031 86-02-041

UNITS $\mu\text{g/ml}$

86-01-240 86-02-087

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|---------|---------------|-------------|------------|-----|--------------------|--------|-----|---------------|----------------|-------|-------|-----|----------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2/8/86 | .041 | .040 | 103 | an dup 01 A | <.005 | NIC | an sp 01 A | <.005 | .024 | .024 | 100 | prep bl <.005 |
| | idl=.005 | .041 | .040 | 103 | | | | | | | | | col bl <.005 |
| | | .040 | .040 | 100 | | | | | | | | | |
| Hg | 2/3/86 | .0054 | .0050 | 108 | dig dup 09 A | <.0003 | NIC | dig sp 09 A | <.002 | .0028 | .0020 | 140 | prep bl .0004* |
| | idl=.0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Pb | 2-11/86 | .042 | .045 | 93 | an dup 09 A | <.002 | NIC | an sp 09 A | <.002 | .019 | .024 | 79 | prep bl .002 |
| | idl=.002 | .046 | .045 | 102 | | | | | | | | | col bl <.002 |
| | | | | | | | | | | | | | |
| 5281 Sc | 2/9/86 | .044 | .050 | 88 | an dup 05 A | <.003 | NIC | an sp 05 A | <.003 | .018 | .024 | 75 | prep bl <.003 |
| | idl=.003 | .044 | .050 | 88 | | | | an sp 05 1/10 | <.003 | .022 | .024 | 92 | col bl <.003 |
| | | | | | | | | dilution | | | | | |
| Hg | 8/8/86 | .0054 | .0050 | 108 | dig dup 03 A | <.0002 | NIC | dig sp 04 A | <.0002 | .0024 | .0020 | 120 | <.0002 prep bl |
| | idl=.0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |

an dup = analytical duplicate
 dig dup = digestion duplicate
 i.d.l. = instrument detection limit

an sp = analytical spike
 dig sp = digestion spike or matrix

* indicates value is less than 5x instrument detection limit
 NIC = not calculable

UNITS $\mu\text{g/gal}$

PLANT 4 86-02-031 samples (01-, 02, 03, 06)-011 Grease 02, 03 METALS

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS | |
|----------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|----------------|------|-------|-------|--------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | | %R |
| As | 2-19-86 | .039 | .040 | 98 | an dup 02 G | <.005 | <.005 | NC | an. sp 02 G | 5005 | .023 | .024 | 96 | prep bl <.005 |
| | idl = .005 | .040 | .040 | 100 | | | | | | | | | | cal bl <.005 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | — | | | | dig sp 03 G | 5002 | .0019 | .0020 | 95 | prep bl <.0002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup 02 G | .033 | .030 | 9.4 | an. sp 02 G | .033 | .053 | .024 | 83 | prep bl <.002 |
| | idl = .002 | .045 | .045 | 100 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | — | | | | an. sp 02 G | .003 | .021 | .024 | 75 | prep bl <.002 |
| | idl = .002 | .040 | .040 | 100 | | | | | | | | | | cal bl <.002 |
| | | .039 | .040 | 98 | | | | | | | | | | |
| 0.1 and Grease | 2-14-86 | 197 | 200 | 99 | — | | | | — | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| HC | 2-26-86 | 430 | 415 | 104 | | | | | | | | | | |
| | idl = 1 | 208 | 245 | 118 | | | | | | | | | | |

an. sp = analytical spike
dig sp = digested or matrix spike
idl = instrument detection limit

an dup = analytical duplicate
dig dup = digestion duplicate

+ indicates value is
detection limit

NC = not calculable

less than 5x instrument

upland

86-02-060

[illegible]

an dup = analytical duplicate
dig dup = digestion duplicate

- * indicates value is less than 5x instrument detection limit
- NC = not calculable

UNITS ug/gal

PLANT 4 86-02-067

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS | |
|----------------|---------------|-------------|------------|-----|--------------------|------|------|-----|-----------------|--------|-------|-------|--------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | | %R |
| As | 2-15-86 | .029 | .027 | 107 | — | | | | an sp 0.3 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl=.002 | .042 | .040 | 105 | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Hg | 2-24-86 | .0048 | .0050 | 96 | — | | | | dig sp 0.4 E | <.0002 | .0020 | .0020 | 100 | prep bl <.0002 |
| | 2-20-86 | .0048 | .0050 | 96 | | | | | | | | | | prep bl <.0002 |
| | idl=.0002 | .0044 | .0040 | 110 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | an dup 0.4 E | .037 | .038 | 2.1 | an sp 0.3 E | .020 | .035 | .024 | 63 | prep bl .004 |
| | idl=.002 | .049 | .043 | 114 | | | | | | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | an dup 0.1 E | .007 | .007 | 0 | an sp 0.4 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl=.002 | .040 | .040 | | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Oil and Grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | | |
| | idl=1 | 197 | 200 | 99 | | | | | | | | | | |
| | | | | | | | | | | | | | | |

idl = instrument detection limit
 an sp = analytical spike
 dig = digestion duplicate
 an dup = analytical duplicate
 * indicates value is less than 5 x instrument detection limit
 N/C = not calculable

UNITS µg/l

PLANT 4 86-02-079 sampled 01-04 samples 05,06,07-04B,HC

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|--------------|---------------|-------------|------------|-----|--------------------|--------|--------|-----|----------------|--------|-------|-------|-----|--------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP#" | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-21-86 | .043 | .040 | 105 | an dup | .011 | .010 | 9.5 | an sp | | | | | prep |
| | | | | | 01A | .011 | | | 01A | .011 | .038 | .024 | 113 | <.002 |
| | idl=.002 | .043 | .040 | 105 | dig dup | .011 | .011 | 0 | 02A | .007 | .026 | .020 | 95 | <.002 |
| | | .042 | .040 | 105 | | | | | | | | | | <.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup | <.0002 | <.0002 | NC | dig sp | | | | | prep |
| | | | | | 01A | <.0002 | | | 04A | <.0002 | .0031 | .0020 | 105 | <.0002 |
| | idl=.0002 | .0043 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| 5 Pb | 2-21-86 | .042 | .043 | 98 | dig dup | .048 | .047 | 2.1 | dig sp | | | | | prep |
| | | | | | 01A | .048 | | | 02A | <.0002 | .009 | .020 | 45 | <.002 |
| | idl=.002 | .043 | .043 | 100 | | | | | an sp | <.0002 | .011 | .024 | 46 | an/bi |
| | | | | | | | | | an sp | <.0002 | .027 | .024 | 113 | <.002 |
| Se | 2-21-86 | .041 | .040 | 103 | dig dup | <.0002 | <.0002 | NC | dig sp | | | | | prep |
| | | | | | 01A | <.0002 | | | 02A | <.0002 | .003 | .010 | 0 | <.002 |
| | idl=.002 | .043 | .040 | 108 | | | | | an sp | <.0002 | .016 | .024 | 67 | an/bi |
| | | | | | | | | | 04A | <.0002 | .024 | .024 | 100 | <.002 |
| oil & Grease | 3-14-86 | 191 | 200 | 96 | | | | | an sp | | | | | |
| | idl= 1 | | | | | | | | 04A | <.0002 | .024 | .024 | | |

an dup = analytical duplicate dig dup = pre-digest duplicate idl = instrument detection limit NC = NOT CALCULABLE
 an sp = analytical spike dig sp = pre-digest spike * = value is less than 5 x idl

PLANT 4 86-02-087 samples of 05 (metals) 01,02,03(MC) 01,02,03(MC) ~~spike~~ UNITS ~~spike~~

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|-------------------|---------------|-------------|------------|-----|--------------------|------|------|-----|-----------------------|-------|-------|-------|-----|--|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPO | SAMP# | SR | SSR | SA | %R | |
| As | 2-24-86 | .036 | .040 | 90 | andup 04A | .038 | .038 | 0 | an sp 05A | <.002 | .024 | .024 | 100 | prep bl 1.002 cal bl <.002 cal bl <.002 |
| | idl=.002 | .036 | .040 | 90 | | | | | | | | | | |
| | | .037 | .040 | 93 | - | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | dig sp 05A | <.002 | .0019 | .0020 | 95 | prep bl 1.002 |
| | idl=.0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-21-86 | .042 | .043 | 98 | - | | | | an sp 05A | <.002 | .017 | .024 | 71 | prep bl 1.002* |
| | idl=.002 | .043 | .043 | 100 | | | | | an sp 05A:100:1 | <.002 | .024 | .024 | 100 | cal bl 1.002 |
| Se | 2-21-86 | .041 | .040 | 103 | | | | | an sp 04A | <.002 | .012 | .024 | 63 | prep bl 1.002 |
| | idl=.002 | .043 | .040 | 108 | | | | | an sp 04A dilution | <.002 | .023 | .024 | 96 | cal bl 1.002 |
| oil and grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | idl=1 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an dup=analytical duplicate an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike
idl = instrument detection limit *=value is less than five times the instrument detection limit NC=not calculable

For work 8601246
orders 8602031
8602041
8602060
8602067
8602079
8602087

Form VII

Q.C. Report No. 2

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME Radium

CASE NO. PLANT 4

DATE 3-4-86

LCS UNITS ug/L mg/kg

ug/ml (Circle One)

| Compound | Required Detection Limits (CRDL)-ug/l | Instrument Detection Limits (IDL)-ug/l | | Lab Control Sample | | |
|---------------|---------------------------------------|--|----------|--------------------|-------|----|
| | | ICP/AA | Furnace* | True | Found | ZR |
| Metals: | | | | | | |
| 1. Aluminum | 200 | | | | | |
| 2. Antimony | 60 | | | | | |
| 3. Arsenic | 10 | | | | | |
| 4. Barium | 200 | | <.001 | | | |
| 5. Beryllium | 5 | | | | | |
| 6. Cadmium | 5 | | <.002 | | | |
| 7. Calcium | 5000 | | | | | |
| 8. Chromium | 10 | | <.005 | | | |
| 9. Cobalt | 50 | | | | | |
| 10. Copper | 25 | | | | | |
| 11. Iron | 100 | | | | | |
| 12. Lead | 5 | | | | | |
| 13. Magnesium | 5000 | | | | | |
| 14. Manganese | 15 | | | | | |
| 15. Mercury | 0.2 | | | | | |
| 16. Nickel | 40 | | | | | |
| 17. Potassium | 5000 | | | | | |
| 18. Selenium | 5 | | | | | |
| 19. Silver | 10 | | <.002 | | | |
| 20. Sodium | 5000 | | | | | |
| 21. Thallium | 10 | | | | | |
| 22. Tin | 40 | | | | | |
| 23. Vanadium | 50 | | | | | |
| 24. Zinc | 20 | | | | | |
| Other: | | | | | | |
| | | | 5 288 | | | |
| Cyanide | 10 | | | | | |

* detection limits are given on ⁸⁻¹³ Furnace/Hg/046 QA/QC SUMMARY SHEETS

ICP QA/QC DATA

For work
orders

8601240
8602031
8602041
8602060
8602067
8602079
8602087

Form II

Q. C. Report No. 2INITIAL AND CONTINUING CALIBRATION VERIFICATION³LAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

SOW NO. _____

UNITS ug/ml

| Compound Metals: | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|---------------------|-----------------------------|-------|-----|-------------------------------------|-------|-----|-------|-----|---------------------|
| | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | 100 | 101 | 101 | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | 100 | 104 | 104 | 1.00 | 1.05 | 105 | 1.04 | 104 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | 100 | 1.01 | 101 | 1.00 | 1.02 | 102 | 1.02 | 102 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | 100 | 100 | 100 | 1.00 | 1.02 | 102 | 1.00 | 100 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____² Continuing Calibration Source _____³ Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form II

Q. C. Report No. 3

INITIAL AND CONTINUING CALIBRATION VERIFICATION³

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

SOW NO. _____

UNITS µg/ml

| Compound | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|---------------|-----------------------------|-------|----|-------------------------------------|-------|-----|-------|-----|---------------------|
| | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| Metals: | | | | | | | | | |
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | | | | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | | | | 1.00 | 1.04 | 104 | 1.03 | 103 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | | | | 1.00 | 1.00 | 100 | 1.01 | 101 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | | | | 1.00 | 1.01 | 101 | 1.02 | 102 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____ ² Continuing Calibration Source _____

³ Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

86C124C
8602031
8602041
8602060
8602067
8602079
8602087

Form III
Q. C. Report No. 2
BLANKS

LAB NAME Radium
DATE 2-4-86

CASE NO. PLANT 4
UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|------------------------|------------------------|-------|-------|-------|-------------------|---|
| | Blank Value | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | 1.001 | 1.001 | 1.001 | 1.001 | 1.001 | | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | 1.002 | 1.002 | 1.002 | .002* | .002* | | |
| 7. Calcium | | | | | | | |
| 8. Chromium | 1.005 | 1.005 | 1.005 | 1.005 | 1.005 | | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | .006* | .018 | .010 | .004* | .014 | | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x idl

Form III

Q. C. Report No. 2

BLANKS

8602060
8602067LAB NAME RadianCASE NO. (244-86) PLANT 4DATE 3-4-86UNITS ug/mlMatrix water

| Preparation Compound | Initial Calibration | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|------------------------|------------------------|---|---|---|-------------------|---|
| | Blank Value | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | | | | | | .005* | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | | | | | | <.002 | |
| 7. Calcium | | | | | | | |
| 8. Chromium | | | | | | .012* | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | | | | | | <.002 | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x idl

Form VI

Q. C. Report No. 3DUPLICATES
PRE-DIGESTLAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

EPA Sample No.

Lab Sample ID No. 8602060-01CUnits mg/lMatrix waterdigestion

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD ² |
|---------------|----------------------------|-----------|--------------|------------------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | .068 | .066 | 3.0 |
| 5. Beryllium | | | | |
| 6. Cadmium | | <.002 | <.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | .005* | <.005 | NC |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | <.002 | .003* | NC |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

¹ Out of Control

To be added at a later date.

$$^2 \text{ RPD} = [(S - D) / ((S + D) / 2)] \times 100$$

¹ - Non calculable RPD due to value(s) less than CRDL* Value is less than 5 x 10⁻¹

Form V

Q. C. Report No. 2SPIKE SAMPLE RECOVERY
PRE-DIGESTLAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

EPA Sample No.

Lab Sample ID No. 8602560-02Units ug/ml.Matrix waterpre-digest

| Compound | Control Limit %R | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | %R |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|----|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | " | | | | |
| 3. Arsenic | " | | | | |
| 4. Barium | " | 1.81 | .12 | 2.00 | 85 |
| 5. Beryllium | " | | | | |
| 6. Cadmium | " | .035 | .003* | .050 | 64 |
| 7. Calcium | " | | | | |
| 8. Chromium | " | .19 | .034 | .20 | 78 |
| 9. Cobalt | " | | | | |
| 10. Copper | " | | | | |
| 11. Iron | " | | | | |
| 12. Lead | " | | | | |
| 13. Magnesium | " | | | | |
| 14. Manganese | " | | | | |
| 15. Mercury | " | | | | |
| 16. Nickel | " | | | | |
| 17. Potassium | " | | | | |
| 18. Selenium | " | | | | |
| 19. Silver | " | .20 | .004* | .25 | 78 |
| 20. Sodium | " | | | | |
| 21. Thallium | " | | | | |
| 22. Tin | " | | | | |
| 23. Vanadium | " | | | | |
| 24. Zinc | " | | | | |
| Other: | | | | | |
| | | | | | |
| Cyanide | | | | | |

$$1 \text{ \%R} = [(SSR - SR) / SA] \times 100$$

"R" - out of control

Comments: * value is less than 5xidl

Volatile Organics

DETECTION LIMITS

| METHOD 601 | 8602060-01-03, 05 | | METHOD |
|--------------------------|-------------------|------|-----------|
| | | | DETECTION |
| | | | LIMIT |
| | | | ug/l |
| COMPOUND | -01-03 | -05 | |
| Chloromethane | 0.08 | 0.40 | |
| Bromomethane | 1.18 | 5.9 | |
| Vinyl Chloride | 0.18 | 0.40 | |
| Chloroethane | 0.52 | 2.6 | |
| Methylene Chloride | 0.25 | 1.25 | |
| Trichlorofluoromethane | 0.10 | 0.50 | |
| 1,1-Dichloroethene | 0.13 | 0.65 | |
| 1,1-Dichloroethane | 0.07 | 0.35 | |
| Trans-1,2-Dichloroethene | 0.10 | 0.5 | |
| Chloroform | 0.05 | 0.25 | |
| 1,2-Dichloroethane | 0.03 | 0.15 | |
| 1,1,1-Trichloroethane | 0.03 | 0.15 | |
| Carbon Tetrachloride | 0.12 | 0.60 | |
| Bromodichloromethane | 0.10 | 0.50 | |
| 1,2-Dichloropropane | 0.04 | 0.20 | |
| Trichloroethene | 0.12 | 0.60 | |
| Dibromochloromethane | 0.09 | 0.45 | |
| 2-Chloroethylvinyl Ether | 0.13 | 0.65 | |
| Bromoform | 0.20 | 1.0 | |
| Tetrachloroethene | 0.03 | 0.15 | |
| Chlorobenzene | 0.25 | 1.25 | |
| 1,3-Dichlorobenzene | 0.32 | 1.60 | |
| 1,2-Dichlorobenzene | 0.15 | 0.75 | |
| 1,4-Dichlorobenzene | 0.24 | 1.20 | |

DETECTION LIMITS

VOLATILE ORGANICS

METHOD 602

8602060-01-03, 05

| COMPOUND | -05 -01-03 | DETECTION LIMIT $\mu\text{g/l}$ | | | | | | |
|---------------------|---------------|---------------------------------|--|--|--|--|--|--|
| BENZENE | 0.2 | | | | | | | |
| TOLUENE | 0.2 | | | | | | | |
| ETHYLBENZENE | 0.2 | | | | | | | |
| CHLOROBENZENE | 0.2 | | | | | | | |
| 1,4-DICHLOROBENZENE | 0.3 | | | | | | | |
| 1,3-DICHLOROBENZENE | 0.4 | | | | | | | |
| 1,2-DICHLOROBENZENE | 0.4 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

VOA RESULTS

| LAB # <u>SYSTEM BLANK</u> | | | |
|---------------------------|---|---------------------|--|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| ===== | | ===== | |
| EPA METHOD 601 | DATE: <u>2/15/82</u> ANALYST: <u>SSC</u> INSTRUMENT: <u>Hewlett</u> | EPA METHOD 602 | DATE: _____ ANALYST: _____ INSTRUMENT: _____ |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>ND</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601

Bromochloromethane _____

2-Bromo-1-Chloropropane _____

1,4-Dichlorobutane _____

602

a,a,a,-Trifluorotoluene _____

VOA RESULTS

| LAB # _____ | | REAGENT BLANK | |
|---------------------------|---|-------------------------|----------------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: 4/13/86 ANALYST: C INSTRUMENT: Shimadzu | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <i>NP</i> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | a,a,a,-Trifluorotoluene | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM <u>D LAMC</u> | |
|---------------------------|----------------------------------|-------------------------------|---|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/11/82</u> ANALYST: <u>JSC</u> INSTRUMENT: <u>200</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | <u>NP</u> |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichlorethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |
| | | SURROGATE RECOVERIES: | |
| | | 601 | |
| | | Bromochloromethane _____ | |
| | | 2-Bromo-1-Chloropropane _____ | |
| | | 1,4-Dichlorobutane _____ | |
| | | 602 | |
| | | a,a,a,-Trifluorotoluene _____ | |

VOA RESULTS

| LAB # | | 11-8607 Blank | |
|---------------------------|----------------------------------|-------------------------|--|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/11/76 ANALYST: C INSTRUMENT: J |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | J |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---------------------------|----------------------|---|----------------------|
| LAB # <u>SYSDO BUNK</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| DATE: 2/12/76 | | DATE: _____ | |
| ANALYST: JSC | | ANALYST: _____ | |
| INSTRUMENT: <u>Hiran</u> | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | SURROGATE RECOVERIES: 601 Bromochloromethane _____ 2-Bromo-1-Chloropropane _____ 1,4-Dichlorobutane _____ 602 a,a,a,-Trifluorotoluene _____ | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---|----------------------|---|----------------------|
| LAB # <u> </u> | | CLIENT NAME <u> </u> | |
| SAMPLE ID <u> </u> | | SAMPLE ID <u> </u> | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| DATE: <u>2/12/96</u> | | DATE: <u> </u> | |
| ANALYST: <u> </u> | | ANALYST: <u> </u> | |
| INSTRUMENT: <u> </u> | | INSTRUMENT: <u> </u> | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>N2</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | SYSTEM BLANK | |
|---------------------------|----------------------------------|-------------------------|--|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/11/72 ANALYST: JSC INSTRUMENT: OEL |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | No |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | SURROGATE RECOVERIES: | |
| 1,2-Dichloropropane | | 601 | |
| Trans-1,3-Dichloropropene | | Bromochloromethane | |
| Trichloroethene | | 2-Bromo-1-Chloropropane | |
| Dibromochloromethane | | 1,4-Dichlorobutane | |
| 1,1,2-Trichloroethane | | 602 | |
| cis-1,3-Dichloropropene | | a,a,a,-Trifluorotoluene | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | CLIENT NAME | |
|---------------------------|----------------------------------|-------------------------|---|
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/12/96 ANALYST: C INSTRUMENT: Delo |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | ND |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA 82 WP 483 conc 2 + EPA 82 WP 781 conc 3

5/13/86

B/G B/G

| | CERTIFIED VALUE (mg/L) | ANALYZED VALUE | 81% B/G |
|---------------------------|------------------------------|-------------------|------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 9.0 / 10.4 | 98 / 113 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 9.8 / 10.1 | 98 / 101 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 50.8 / 52.2 | 118 / 121 |
| 1,2-Dichloroethane | 27.6 | 22.7 / 25.2 | 82 / 91 |
| 1,1,1-Trichloroethane | 14.3 | 14.4 / 15.1 | 100 / 106 |
| Carbon tetrachloride | 20.0 | 20.5 / 20.9 | 102 / 105 |
| Bromodichloromethane | 7.9 | 8.4 / 8.0 | 107 / 102 |
| 1,2-Dichloropropane | 8.0 | 8.2 / 8.5 | 103 / 106 |
| Trichloroethene | 22.2 | 21.2 / 24.6 | 95 / 110 |
| Dibromochloromethane | 16.7 | 15.8 / 13.5 | 94 / 81 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 8.3 / 9.5 | 84 / 96 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.7 / 8.6 | 107 / 105 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/12/86

| | CERTIFIED VALUE (mg/L) | B / G ANALYZED VALUE | B / G % REC |
|---------------------------|------------------------------|----------------------------|----------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 8.5 / 10.0 | 92 / 109 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.6 / 8.1 | 86 / 81 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 45.2 / 58.0 | 105 / 135 |
| 1,2-Dichloroethane | 27.6 | 20.0 / 23.5 | 72 / 85 |
| 1,1,1-Trichloroethane | 14.3 | 13.8 / 15.3 | 96 / 107 |
| Carbon tetrachloride | 20.0 | 18.8 / 16.5 | 94 / 83 |
| Bromodichloromethane | 7.9 | 7.4 / 7.3 | 94 / 92 |
| 1,2-Dichloropropane | 8.0 | 6.6 / 8.4 | 82 / 105 |
| Trichloroethene | 22.2 | 19.7 / 22.7 | 89 / 102 |
| Dibromochloromethane | 16.7 | 14.3 / 14.9 | 86 / 89 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 7.2 / 8.9 | 72 / 90 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 7.9 / 7.6 | 96 / 93 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/12/76 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 34.8 | | | 113 | | |
| | Toluene | 4.1 | 4.5 | | | 110 | | |
| | Ethylbenzene | 11.5 | 11.2 | | | 97 | | |
| | P-Xylene | 19.1 | 20.8 | | | 109 | | |
| | M-Xylene | 42.6 | 46.6 | | | 109 | | |
| | O-Xylene | 10.6 | 10.5 | | | 99 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| DATE: 2/11/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | Z RECOVERY | | |
|----------------|----------------------------|---------------------------|--------------------------|------|--------|---------------|-----|--|
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| | EPA 602 | Benzene | 30.7 | 32.3 | | | 105 | |
| Toluene | | 4.1 | 3.9 | | | 96 | | |
| Ethylbenzene | | 11.5 | 10.7 | | | 89 | | |
| P-Xylene | | 19.1 | 19.0 | | | 100 | | |
| M-Xylene | | 42.6 | 43.2 | | | 102 | | |
| O-Xylene | | 10.6 | 9.7 | | | 91 | | |
| EPA 608 | | | (ug/g) | | (ug/g) | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

SPIKE RECOVERY

| EPA METHOD 601 Volatile Organics | 8602060-025 PANTY 86042 4/13/86 R. C. Evans | | | | | | | |
|-------------------------------------|--|------|------|-----|-----|----|----|----|
| COMPOUNDS | SSR | SR | SA | ZR | SSR | SR | SA | ZR |
| Chloromethane | | | | | | | | |
| Bromomethane | | | | | | | | |
| Vinyl chloride | | | | | | | | |
| Chloroethane | | | | | | | | |
| Methylene chloride | 9.3 | 0.74 | 9.2 | 93 | | | | |
| Trichlorofluoromethane | | | | | | | | |
| 1,1-Dichloroethene | 7.2 | | 10.0 | 72 | | | | |
| 1,1-Dichloroethane | | | | | | | | |
| trans-1,2-Dichloroethene | 4.8 | | 5.4 | 89 | | | | |
| Chloroform | 76.2 | 3.79 | 43.0 | 169 | | | | |
| 1,2-Dichloroethane | 25.0 | | 27.6 | 90 | | | | |
| 1,1,1-Trichloroethane | 15.3 | | 14.3 | 107 | | | | |
| Carbon Tetrachloride | 21.8 | | 20.0 | 109 | | | | |
| Bromodichloromethane | 11.5 | 1.81 | 7.9 | 123 | | | | |
| 1,2-Dichloropropane | 8.2 | | 8.0 | 102 | | | | |
| Trichloroethene | 23.2 | 0.95 | 22.2 | 100 | | | | |
| Dibromochloromethane | 11.9 | 0.72 | 16.7 | 67 | | | | |
| 1,1,2-Trichloroethane | | | | | | | | |
| cis-1,2-Dichloropropene | | | | | | | | |
| 2-Chlorethylvinyl ether | | | | | | | | |
| Bromoform | 11.1 | | 9.9 | 112 | | | | |
| 1,1,2,2-Tetrachlorethane | | | 10.0 | | | | | |
| Tetrachlorethylene | | 0.68 | 6.2 | | | | | |
| Chlorobenzene | 9.8 | | 8.2 | 119 | | | | |
| 1,3-Dichlorobenzene | | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

5 309

8602060-05B
 860146

DUPLICATE ANALYSIS

| EPA Method 601 Volatile Organics | | | | | | |
|-------------------------------------|-------|-------|------|-------|-------|-----|
| COMPOUND | RUN#1 | RUN#2 | RPD | RUN#1 | RUN#2 | RPD |
| Chloromethane | | | | | | |
| Bromomethane | | | | | | |
| Vinyl chloride | | | | | | |
| Chloroethane | | | | | | |
| Methylene chloride | | | | | | |
| Trichlorofluoromethane | | | | | | |
| 1,1-Dichloroethene | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| *trans-1,2-Dichloroethene | 8.48 | 7.81 | 8.2 | | | |
| Chloroform | | | | | | |
| 1,2-Dichloroethane | | | | | | |
| 1,1,1-Trichloroethane | | | | | | |
| Carbon Tetrachloride | | | | | | |
| Bromodichloroemethane | | | | | | |
| 1,2-Dichloropropane | | | | | | |
| Trichloroethene | 26.4 | 22.3 | 16.8 | | | |
| Dibromochloromethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| cis-1,2-Dichloropropene | | | | | | |
| 2-Chloroethylvinyl ether | | | | | | |
| Bromoform | | | | | | |
| 1,1,2,2-Tetrachlorethane | | | | | | |
| Tetrachlorethylene | 1.31 | 0.74 | 55.6 | | | |
| Chlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD = Relative Percent Difference

*- did not confirm

SURROGATE RECOVERIES

LAB #: 8602000-01E

SAMPLE ID: 8600141

DATE: 2-12-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 124%

2-BROMO-1-CHLOROPROPANE: 119%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8002000-02E

SAMPLE ID: 800142

DATE: 2-13-80

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 103%

2-BROMO-1-CHLOROPROPANE: 110%

602/8020

a, a, a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 86002060-C3E

SAMPLE ID: 8600143

DATE: 2-13-80

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 116%

2-BROMO-1-CHLOROPROPANE: 127%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602060-05B

SAMPLE ID: 860146

DATE: 2-13-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 123%, 104%

2-BROMO-1-CHLOROPROPANE: 138%, 109%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8605060-016

SAMPLE ID: 860141

DATE: 2-11-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 101%

SURROGATE RECOVERIES

LAB #: 8602060-02A

SAMPLE ID: 860142

DATE: 2-12-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 102%

SURROGATE RECOVERIES

LAB #: 8602000-036

SAMPLE ID: 860143

DATE: 8-12-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 15%

SURROGATE RECOVERIES

LAB #: 8608000-05D

SAMPLE ID: 860146

DATE: 2-12-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 116%

EPA 601-800147; 800148; 800149; 800150; 800151 OIL & GREASE 800151
EPA 602-800147; 800148; 800149; 800150; 800151 HYDROCARBON FUEL 800151
METALS 800147; 800148; 800149; 800150; & TRIP BLANK

RADIAN
CORPORATION

AUSTIN

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address General Dynamics Plant 4, Fort Worth, TX
Sample Point Description Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name NEIL ROBINSON Date/Time Sampled 2-11-86 A.M. DAY

Amount of Sample Collected (20 liter) 49 ml VOAS; (2) 100 ml + MARON; (1) 500 ml plastic

Sample Description Ground Water (1) TRIP BLANK

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 7°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RADIAN

Received By _____ Date Received _____ Time _____

Transported By Neil Robinson Lab Sample No. 86-02-067

Comments _____

Inclusive Dates of Possession 2-11-86

Organization Name RAS

Received By Mike Tuller Date Received 2/17/86 Time 1:00

Transported By Mike Tuller Lab Sample No. 86-02-067

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

FOR W.O. 86-01-240 96-02-087
 86-02-031 86-02-041

PLANT 4 86-01-240 samples 01-09

UNITS $\mu\text{g/ml}$

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|---------|----------------|-------------|------------|-----|--------------------|--------|-----|------------------|----------------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2/8/86 | .041 | .040 | 103 | an dup 01 A | <.005 | NC | an sp 01 A | <.005 | .024 | .024 | 100 | prep bl <.005 |
| | i.d.l. = .005 | .041 | .040 | 103 | | | | | | | | | an bl <.005 |
| | | .040 | .040 | 100 | | | | | | | | | |
| Hg | 2/3/86 | .0054 | .0050 | 108 | dig dup 09 A | .0003 | NC | dig sp 09 A | <.002 | .0028 | .0020 | 140 | prep bl ,0004* |
| | i.d.l. = .0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Pb | 2-11/86 | .042 | .045 | 93 | an dup 09 A | <.002 | NC | an sp 09 A | <.002 | .019 | .024 | 79 | prep bl ,002- |
| | i.d.l. = .002 | .046 | .045 | 102 | | | | | | | | | an bl <.002- |
| | | | | | | | | | | | | | |
| 250 | 2/9/86 | .044 | .050 | 88 | an dup 05 A | <.003 | NC | an sp 05 A | <.003 | .018 | .024 | 75 | prep bl <.003 |
| | i.d.l. = .003 | .044 | .050 | 88 | | | | an sp 05 1:10 | <.003 | .022 | .024 | 92 | an bl <.003 |
| | | | | | | | | dilution | | | | | |
| Hg | 2/8/86 | .0054 | .0050 | 108 | dig dup 03 A | <.0002 | NC | dig sp 04 A | <.0002 | .0024 | .0020 | 120 | <.0002 prep bl |
| | i.d.l. = .0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |

an dup = analytical duplicate
 dig dup = digestion duplicate
 i.d.l. = instrument detection limit

an sp = analytical spike
 dig sp = digestion spike or matrix

* indicates value is less than 5x instrument detection limit
 NC = not calculable

UNITS ug/l

PLANT 4 86-02-031 samples (01-, 03, 03, 06)-011+Grease 03, 03-METALS

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|----------------|-------|-------|-------|----|-------------------------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-19-86 | .039 | .040 | 98 | an dup 02 G | <.005 | <.005 | NC | an. sp 02 G | 5005 | .023 | .024 | 96 | prep bl <.005 cal bl <.005 |
| | idl = .005 | .040 | .040 | 100 | | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | — | | | | dig sp 03 G | 50002 | .0019 | .0020 | 95 | prep bl <.0002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-12-86 | .044 | .045 | 98 | an dup 03 G | .033 | .030 | 9.4 | an. sp 02 G | .033 | .053 | .024 | 83 | prep bl <.002 |
| | idl = .002 | .045 | .045 | 100 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | — | | | | an. sp 02 G | .003 | .021 | .024 | 75 | prep bl <.002 cal bl <.008 |
| | idl = .002 | .040 | .040 | 100 | | | | | | | | | | |
| | | .039 | .040 | 98 | | | | | | | | | | |
| oil and Grease | 2-14-86 | 197 | 200 | 99 | — | | | | | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| HC | 2-26-86 | 430 | 415 | 104 | | | | | | | | | | |
| | idl = 1 | 208 | 245 | 118 | | | | | | | | | | |

an. sp = analytical spike
dig sp = digest or matrix spike
idl = instrument detection limit

an dup = analytical duplicate
dig dup = digestion duplicate

* indicates value is less than 5x instrument detection limit

NC = not calculable

UNITS ug/ml

PLANT 4 86-02-041 samples 01-06

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|--------|--------|-----|--------------------------------|--------|-------|------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R |
| As | 2-19-86 | .039 | .040 | 98 | an dup 01 E | <.005 | <.005 | NC | an sp 01 E | <.005 | .022 | .024 | 93 |
| | idl=.005 | .037 | .040 | 93 | | | | | | | | | prep bl <.005 |
| | | .035 | .040 | 88 | | | | | | | | | cal bl <.005 |
| | | | | | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup 06 E | <.0002 | *.0002 | NC | dig sp 05 E | <.0002 | .0022 | .020 | 110 |
| | idl=.0002 | .0044 | .0040 | 110 | | | | | | | | | prep bl <.0002 |
| | | .0044 | .0040 | 110 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup 01 E | <.002 | <.002 | NC | an sp 01 E 1:10 dilution | <.002 | .021 | .024 | 88 |
| | idl=.002 | .045 | .045 | 100 | | | | | | | | | prep bl <.002 |
| | | .048 | .045 | 107 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | - | | | | an sp 03 E | *.003 | .021 | .024 | 75 |
| | idl=.002 | .039 | .040 | 98 | | | | | | | | | prep bl <.002 |
| | | | | | | | | | | | | | cal bl <.002 |
| | | | | | | | | | | | | | |
| oil and grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | |
| | idl=1 | 197 | 200 | 99 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

HC -idl=1 2-14-86

an sp = analytical spike
dig sp = digestion spike or matrix spike

an dup = analytical duplicate
dig dup = digestion duplicate

<1 <1 NC

idl = instrument det limit

* indicates value is less than 5x instrument detection limit

NC = not calculable

UNITS

ug/gal

PLANT 4 86-02-060 samples 01-05

| ELEMENT | ANALYSIS DATE | QC DATA | | DUPLICATE ANALYSIS | | | SPIKE RECOVERY | | | | | BLANKS |
|-------------------|---------------|-------------|------------|--------------------|----------------|-------|----------------|----------------------|-------|-------|-------|--------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP # | DUPL | RPD | SAMP# | SR | SSR | SA | %R |
| As | 2-15-86 | .029 | .027 | 107 | dig dup 01C | .002* | 40 | dig sp 02C | .006* | .023 | .020 | 85 |
| | idl = .002 | .042 | .040 | 105 | an. dup 03C | .006* | 67 | 05A 1:10 dil | <.002 | .024 | .024 | 100 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | 05A | <.002 | .0020 | .0020 | 100 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | dig dup 01C | .034 | 9.1 | dig sp 02C | .27 | .29 | .020 | 100 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | dig dup 01C | .003* | 40 | dig sp 02C | <.002 | .005 | .010 | 50 |
| | idl = .002 | .040 | .040 | 100 | | | | 05A 1:10 dilution | <.002 | .023 | .024 | 96 |
| oil and grease | 2-14-86 | 197 | 200 | 99 | - | | | - | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | |

an sp = analytical spike

dig sp = digestion or matrix spike

idl = instrument detection limit

an dup = analytical duplicate

dig dup = digestion duplicate

* indicates value is less than

5x instrument detection limit

NC = not calculable

UNITS ug/lal

PLANT 4 86-02-067

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS | |
|----------------|---------------|-------------|------------|-----|--------------------|------|------|-----|----------------|--------|-------|-------|--------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | | %R |
| | | | | | | | | | | | | | | |
| As | 2-15-86 | .029 | .027 | 107 | — | | | | an sp 03 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .042 | .040 | 105 | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Hg | 2-24-86 | .0048 | .0050 | 96 | — | | | | dig sp 04 E | <.0002 | .0020 | .0020 | 100 | prep bl <.0002 |
| | 2-20-86 | .0048 | .0050 | 96 | | | | | | | | | | prep bl <.0002 |
| | idl = .0002 | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | | .0044 | .0040 | 110 | | | | | | | | | | |
| | 2-17-86 | .045 | .043 | 105 | an dup 04 E | .037 | .038 | 2.7 | an sp 03 E | .020 | .035 | .024 | 63 | prep bl .004 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | | cal bl <.002 |
| Se | 2-17-86 | .042 | .040 | 105 | an dup 01 E | .007 | .007 | 0 | an sp 04 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .040 | .040 | | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Oil and Grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| | | | | | | | | | | | | | | |

idl = instrument
detection
limit

an sp = analytical spike

dig 5: = digestion or matrix spike

dig = digestion duplicate
an dup = analytical duplicate* indicated value is less
than 5x instrument detection
limit
NC = not calculable

UNITS µg/galsamples
050607-096, HC

01 - 04

PLANT 4 86-03-079 samples

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|--------------|---------------|-------------|------------|-----|--------------------|--------|--------|-----|----------------------|--------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-21-86 | .043 | .040 | 105 | an. dup 01A | .011 | .010 | 9.5 | an. sp. 01A | .011 | .038 | .024 | 113 | prep bl <.002 |
| | idl = .002 | .043 | .040 | 105 | dig dup 01A | .011 | .011 | 0 | dig dup 03A | .007 | .026 | .020 | 95 | cal bl <.002 |
| | | .042 | .040 | 105 | | | | | | | | | | <.002 |
| | | | | | | | | | | | | | | <.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup 01A | <.0002 | <.0002 | NC | dig sp 04A | <.0002 | .0031 | .0020 | 105 | prep bl <.0002 |
| | idl = .0002 | .0043 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Pb | 2-21-86 | .042 | .043 | 98 | dig dup 01A | .048 | .047 | 2.1 | dig sp 03A | <.0002 | .009 | .020 | 45 | prep bl <.002 |
| | idl = .002 | .043 | .043 | 100 | | | | | an. sp 04A | <.0002 | .011 | .024 | 46 | cal bl <.002 |
| | | | | | | | | | an. sp | <.0002 | .027 | .024 | 113 | cal bl <.002 |
| | | | | | | | | | 04A 1:10 dilution | | | | | |
| Se | 2-21-86 | .041 | .040 | 103 | dig dup 01A | <.0002 | <.0002 | NC | dig sp 03A | <.0002 | .003 | .010 | 0 | prep bl <.002 |
| | idl = .002 | .043 | .040 | 108 | | | | | an. sp 04A | <.0002 | .016 | .024 | 67 | cal bl <.002 |
| | | | | | | | | | an. sp | <.0002 | .024 | .024 | 100 | |
| | | | | | | | | | 04A 1:10 dilution | | | | | |
| oil & Grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | idl = 1 | | | | | | | | | | | | | |

an dup = analytical duplicate dig dup = pre-digest duplicate idl = instrument detection limit NC = NOT CALCULABLE
 an sp = analytical spike dig sp = pre-digest spike * = value is less than 5 x idl

PLANT 4 86-02-087 samples 0405 (metals) 0102(000) 0102,03(HC) UNITS $\mu\text{g}/\text{ml}$

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|-------------|---------------|-------------|------------|-----|--------------------|------|------|-----|----------------------------|--------|-------|-------|-----|--|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-24-86 | .036 | .040 | 90 | an dup 04A | .038 | .038 | 0 | an sp 05A | <.002 | .024 | .024 | 100 | prep bl -<.002- cal bl -<.002 |
| | 1d1=.002 | .036 | .040 | 90 | | | | | | | | | | |
| | | .037 | .040 | 93 | - | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | dig sp 05A | <.0002 | .0019 | .0020 | 95 | prep bl -<.0002 |
| | 1d1=.0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-21-86 | .042 | .043 | 98 | - | | | | an sp 05A | <.002 | .017 | .024 | 71 | prep bl -<.002* |
| | 1d1=.002 | .043 | .043 | 100 | | | | | an sp 05A 1:10 dil | <.002 | .024 | .024 | 100 | cal bl -<.002 |
| | | | | | | | | | | | | | | |
| ind conc | 2-21-86 | .041 | .040 | 103 | | | | | an sp 04A | <.002 | .015 | .024 | 63 | prep bl -<.002 |
| | 1d1=.002 | .043 | .040 | 108 | | | | | an sp 04A 1:10 dilution | <.002 | .023 | .024 | 96 | cal bl -<.002 |
| | | | | | | | | | | | | | | |
| | 3-4-86 | 191 | 200 | 96 | | | | | | | | | | |
| | 1d1= | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike
 limit *value is less than five times the instrument detection limit NC=not calculable

ND-A198 445

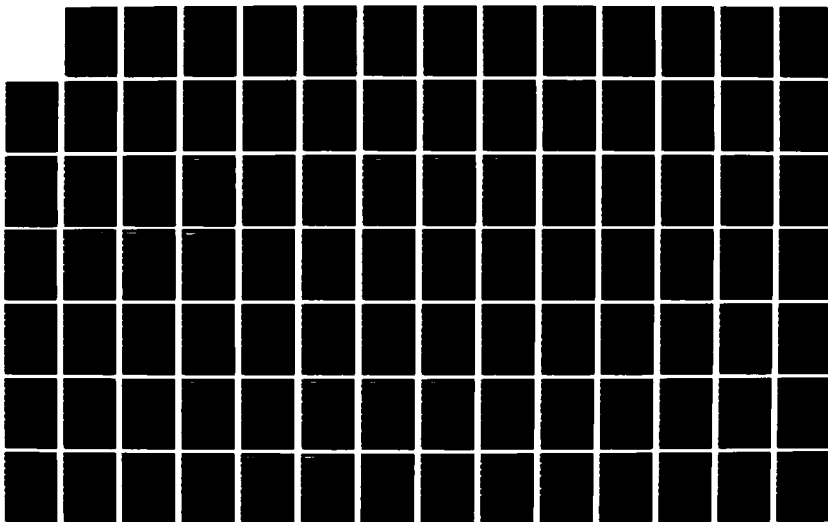
INSTALLATION RESTORATION PROGRAM PHASE 2
CONFIRMATION/QUANTIFICATION STAG. (U) RADIAN CORP
AUSTIN TX DEC 87 F33615-83-D-4881

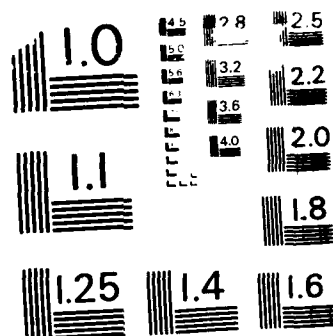
578

UNCLASSIFIED

F/G 24/7

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

For work 86 0124
orders 86 02031
86 02041
86 02060
86 02067
86 02079
86 02081

Form VII

Q.C. Report No. 2

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME Radium

CASE NO. PLANT 4

DATE 3-4-86

LCS UNITS ug/l mg/kg

ug/ml (Circle One)

| Compound | Required Detection Limits (CRDL)-ug/l | Instrument Detection Limits (IDL)-ug/l | | Lab Control Sample | | |
|---------------|--|---|----------|--------------------|-------|----|
| | | ICP/AA | Furnace* | True | Found | ZR |
| Metals: | | | | | | |
| 1. Aluminum | 200 | | | | | |
| 2. Antimony | 60 | | | | | |
| 3. Arsenic | 10 | | | | | |
| 4. Barium | 200 | <.001 | | | | |
| 5. Beryllium | 5 | | | | | |
| 6. Cadmium | 5 | <.002 | | | | |
| 7. Calcium | 5000 | | | | | |
| 8. Chromium | 10 | <.005 | | | | |
| 9. Cobalt | 50 | | | | | |
| 10. Copper | 25 | | | | | |
| 11. Iron | 100 | | | | | |
| 12. Lead | 5 | | | | | |
| 13. Magnesium | 5000 | | | | | |
| 14. Manganese | 15 | | | | | |
| 15. Mercury | 0.2 | | | | | |
| 16. Nickel | 40 | | | | | |
| 17. Potassium | 5000 | | | | | |
| 18. Selenium | 5 | | | | | |
| 19. Silver | 10 | <.002 | | | | |
| 20. Sodium | 5000 | | | | | |
| 21. Thallium | 10 | | | | | |
| 22. Tin | 40 | | | | | |
| 23. Vanadium | 50 | | | | | |
| 24. Zinc | 20 | | | | | |
| Other: | | | | | | |
| | | | 5 327 | | | |
| Cyanide | 10 | | | | | |

* detection limits are given on ⁸⁻¹³ Furnace /Hg/040 QA/QC SUMMARY SHEETS

ICP QA / QC DATA

For work
orders

8601240
8602031
8602041
8602060
8602067
8602079
8602087

Form II

Q. C. Report No. 8INITIAL AND CONTINUING CALIBRATION VERIFICATION³LAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

SOW NO. _____

UNITS ug/ml

| Compound | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|---------------|-----------------------------|-------|-----|-------------------------------------|-------|-----|-------|-----|---------------------|
| | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| Metals: | | | | | | | | | |
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | 100 | 101 | 101 | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | 100 | 104 | 104 | 1.00 | 1.05 | 105 | 1.04 | 104 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | 100 | 101 | 101 | 1.00 | 1.02 | 102 | 1.02 | 102 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | 100 | 100 | 100 | 1.00 | 1.02 | 102 | 1.00 | 100 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____² Continuing Calibration Source _____³ Control Limits: Mercury and Tin. 80-120; All Other Compounds 90-110⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form II

Q. C. Report No. 3

INITIAL AND CONTINUING CALIBRATION VERIFICATION³

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

SOW NO. _____

UNITS µg/ml

| Compound Metals: | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|---------------------|-----------------------------|-------|----|-------------------------------------|-------|-----|-------|-----|---------------------|
| | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | | | | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | | | | 1.00 | 1.04 | 104 | 1.03 | 103 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | | | | 1.00 | 1.00 | 100 | 1.01 | 101 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | | | | 1.00 | 1.01 | 101 | 1.02 | 102 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____ ² Continuing Calibration Source _____

³ Control Limits: Mercury and Tin. 80-120; All Other Compounds 90-110

⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

8601240
8602031
8602041
8602060
8602067
8602079
8602087

Form III

Q. C. Report No. 2

BLANKS

LAB NAME Radium

CASE NO. PLANT 4

DATE 2-4-86

UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|------------------------|------------------------|-------|--------|--------|-------------------|---|
| | Blank Value | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | 1.001 | 1.001 | 1.001 | 1.001 | 1.001 | | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | 1.002 | 1.002 | 1.002 | 1.002* | 1.002* | | |
| 7. Calcium | | | | | | | |
| 8. Chromium | 1.005 | 1.005 | 1.005 | 1.005 | 1.005 | | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | .006* | .018 | .010 | .009* | .014 | | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x idl

Form III

Q. C. Report No. 2

BLANKS

8602060
8602067LAB NAME RadianCASE NO. (24-86) PLANT 4DATE 3-4-86UNITS ug/ml.Matrix water

| Preparation Compound | Initial Calibration | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|------------------------|------------------------|---|---|---|-------------------|-------|
| | Blank Value | Blank Value | 1 | 2 | 3 | 4 | 1 2 |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | | | | | | | .005* |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | | | | | | | <.002 |
| 7. Calcium | | | | | | | |
| 8. Chromium | | | | | | | .012* |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | | | | | | | <.002 |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x cd

Form VI

Q. C. Report No. 2DUPLICATES
ANALYTICALLAB NAME RadianDATE 3-4-86CASE NO. PLANT 4

EPA Sample No.

Lab Sample ID No. 8602067-01Units ug/mlMatrix water.

analytical

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD ² |
|---------------|----------------------------|-----------|--------------|------------------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | .12 | .12 | 0 |
| 5. Beryllium | | | | |
| 6. Cadmium | | <.002 | <.002 | NL |
| 7. Calcium | | | | |
| 8. Chromium | | .21 | .21 | 0 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | <.002 | <.002 | NL |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| | | | | |
| Cyanide | | | | |

¹ Out of Control

To be added at a later date.

$$^2 \text{ RPD} = \left[\frac{|S - D|}{((S + D)/2)} \right] \times 100$$

¹ - Non calculable RPD due to value(s) less than CRDL

Form V

Q. C. Report No. 2SPIKE SAMPLE RECOVERY
ANALYTICALLAB NAME RadianCASE NO. PLANT 4DATE 3-4-86EPA Sample No. _____
Lab Sample ID No. 86-02-06702 EUnits ug/mlMatrix Water

| Compound | Control Limit ZR | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | ZR ¹ |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | " | | | | |
| 3. Arsenic | " | | | | |
| 4. Barium | " | 1.46 | 0.47 | 1.00 | 99 |
| 5. Beryllium | " | | | | |
| 6. Cadmium | " | 0.94 | 2.003 | 1.00 | 94 |
| 7. Calcium | " | | | | |
| 8. Chromium | " | 0.94 | 2.005 | 1.00 | 94 |
| 9. Cobalt | " | | | | |
| 10. Copper | " | | | | |
| 11. Iron | " | | | | |
| 12. Lead | " | | | | |
| 13. Magnesium | " | | | | |
| 14. Manganese | " | | | | |
| 15. Mercury | " | | | | |
| 16. Nickel | " | | | | |
| 17. Potassium | " | | | | |
| 18. Selenium | " | | | | |
| 19. Silver | " | 0.98 | 2.003 | 1.00 | 98 |
| 20. Sodium | " | | | | |
| 21. Thallium | " | | | | |
| 22. Tin | " | | | | |
| 23. Vanadium | " | | | | |
| 24. Zinc | " | | | | |
| Other: | | | | | |
| | | | | | |
| Cyanide | " | | | | |

$$^1 \text{ZR} = [(SSR - SR)/SA] \times 100$$

"R" - out of control

Comments: _____

Volatile Organics

DETECTION LIMITS

| METHOD 601 | 8602067-01-06 | | | METHOD DETECTION LIMIT ug/l |
|------------|--------------------------|---------|------|--------------------------------------|
| | COMPOUND | -04,-06 | -01 | -02 |
| | Chloromethane | 0.08 | 20.0 | 2.0 |
| | Bromomethane | 1.18 | 29.5 | 29.5 |
| | Vinyl Chloride | 0.18 | 30.0 | 3.0 |
| | Chloroethane | 0.52 | 13.0 | 13.0 |
| | Methylene Chloride | 0.25 | 62.5 | 6.25 |
| | Trichlorofluoromethane | 0.10 | 25.0 | 2.5 |
| | 1,1-Dichloroethene | 0.13 | 32.5 | 3.25 |
| | 1,1-Dichloroethane | 0.07 | 17.5 | 1.75 |
| | Trans-1,2-Dichloroethene | 0.10 | 25.0 | 2.5 |
| | Chloroform | 0.05 | 12.5 | 1.25 |
| | 1,2-Dichloroethane | 0.03 | 7.5 | 0.75 |
| | 1,1,1-Trichloroethane | 0.03 | 7.5 | 0.75 |
| | Carbon Tetrachloride | 0.12 | 30.0 | 3.0 |
| | Bromodichloromethane | 0.10 | 25.0 | 2.5 |
| | 1,2-Dichloropropane | 0.04 | 10.0 | 1.0 |
| | Trichloroethene | 0.12 | 30.0 | 3.0 |
| | Dibromochloromethane | 0.09 | 22.5 | 2.25 |
| | 2-Chloroethylvinyl Ether | 0.13 | 32.5 | 3.25 |
| | Bromoform | 0.20 | 50.0 | 5.0 |
| | Tetrachloroethene | 0.03 | 7.5 | 0.75 |
| | Chlorobenzene | 0.25 | 62.5 | 6.25 |
| | 1,3-Dichlorobenzene | 0.32 | 80.0 | 8.0 |
| | 1,2-Dichlorobenzene | 0.15 | 37.5 | 3.75 |
| | 1,4-Dichlorobenzene | 0.24 | 60.0 | 6.0 |

Volatile Organics

DETECTION LIMITS

8602067-01 → -06

| METHOD 601 | | | METHOD |
|--------------------------|------|-------|-----------|
| | | | DETECTION |
| | | | LIMIT |
| | | | ug/l |
| COMPOUND | -03 | -05 | |
| Chloromethane | 40.0 | 800 | |
| Bromomethane | 540 | 11800 | |
| Vinyl Chloride | 90.0 | 1800 | |
| Chloroethane | 860 | 5300 | |
| Methylene Chloride | 125 | 2500 | |
| Trichlorofluoromethane | 50.0 | 1000 | |
| 1,1-Dichloroethene | 65.0 | 1300 | |
| 1,1-Dichloroethane | 35.0 | 700 | |
| Trans-1,2-Dichloroethene | 50.0 | 1000 | |
| Chloroform | 25.0 | 500 | |
| 1,2-Dichloroethane | 15.0 | 300 | |
| 1,1,1-Trichloroethane | 15.0 | 300 | |
| Carbon Tetrachloride | 60.0 | 1200 | |
| Bromodichloromethane | 50.0 | 1000 | |
| 1,2-Dichloropropane | 20.0 | 400 | |
| Trichloroethene | 60.0 | 1200 | |
| Dibromochloromethane | 45.0 | 900 | |
| 2-Chloroethylvinyl Ether | 65.0 | 1300 | |
| Bromoform | 100 | 2000 | |
| Tetrachloroethene | 15.0 | 300 | |
| Chlorobenzene | 125 | 2500 | |
| 1,3-Dichlorobenzene | 160 | 3200 | |
| 1,2-Dichlorobenzene | 75.0 | 1500 | |
| 1,4-Dichlorobenzene | 120 | 2400 | |

VOLATILE ORGANICS

METHOD 602

DETECTION LIMITS

8602067-01-06

| COMPOUND | DETECTION LIMIT | | | | | ug/g |
|---------------------|-----------------|--------|-----|-----|--|------|
| | -04-06 | -01-02 | -03 | -05 | | |
| BENZENE | 0.2 | 5.0 | 50 | 200 | | |
| TOLUENE | 0.2 | 5.0 | 50 | 200 | | |
| ETHYLBENZENE | 0.2 | 5.0 | 50 | 200 | | |
| CHLOROBENZENE | 0.2 | 5.0 | 50 | 200 | | |
| 1,4-DICHLOROBENZENE | 0.3 | 7.5 | 75 | 300 | | |
| 1,3-DICHLOROBENZENE | 0.4 | 10.0 | 100 | 400 | | |
| 1,2-DICHLOROBENZENE | 0.4 | 10.0 | 100 | 400 | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM BANK | |
|---------------------------|--|-------------------------|----------------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: 2/13/86 ANALYST: JSC INSTRUMENT: Benchmate | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | SURROGATE RECOVERIES: | |
| 1,2-Dichloropropane | | 601 | |
| Trans-1,3-Dichloropropene | | Bromochloromethane | |
| Trichloroethene | | 2-Bromo-1-Chloropropane | |
| Dibromochloromethane | | 1,4-Dichlorobutane | |
| 1,1,2-Trichlorethane | | 602 | |
| cis-1,3-Dichloropropene | | a,a,a,-Trifluorotoluene | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | CLIENT NAME _____ | | SAMPLE ID _____ | |
|---------------------------|---|-------------------------|----------------------------------|-----------------|--|
| EPA METHOD 601 | DATE: 2/13/78 ANALYST: C INSTRUMENT: Buntette | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: | | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) | | |
| Chloromethane | ND | Benzene | | | |
| Bromomethane | | Toluene | | | |
| Vinyl Chloride | | Ethyl benzene | | | |
| Chloroethane | | Chlorobenzene | | | |
| Methylene chloride | | 1,4-Dichlorobenzene | | | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | | | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | | | |
| 1,1-Dichlorethane | | P-Xylene | | | |
| Trans-1,2-Dichloroethene | | M-Xylene | | | |
| Chloroform | | O-Xylene | | | |
| 1,2-Dichloroethane | | SURROGATE RECOVERIES: | | | |
| 1,1,1-Trichloroethane | | | | | |
| Carbon tetrachloride | | | | | |
| Bromodichlormethane | | | | | |
| 1,2-Dichloropropane | | | | | |
| Trans-1,3-Dichloropropene | | | | | |
| Trichloroethene | | | | | |
| Dibromochloromethane | | | | | |
| 1,1,2-Trichloroethane | | | | | |
| cis-1,3-Dichloropropene | | 601 | Bromochloromethane | | |
| 2-Chloroethylvinyl ether | | 2-Bromo-1-Chloropropane | | | |
| Bromoform | | 1,4-Dichlorobutane | | | |
| 1,1,2,2-Tetrachlorethane | | 602 | a,a,a,-Trifluorotoluene | | |
| Tetrachlorethylene | | | | | |
| Chlorobenzene | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM Blank | |
|---------------------------|---|-------------------------|----------------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: 4/10/86 ANALYST: JSC INSTRUMENT: Bunkette | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | a,a,a,-Trifluorotoluene | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|-----------------------------|----------------------|---------------------|----------------------|
| LAB # <u>169217 D LAWIC</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| DATE: <u>4/16/82</u> | | DATE: _____ | |
| ANALYST: <u>CP</u> | | ANALYST: _____ | |
| INSTRUMENT: <u>Bentley</u> | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>ND</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |
| | | | |

SURROGATE RECOVERIES:

601

Bromochloromethane _____

2-Bromo-1-Chloropropane _____

1,4-Dichlorobutane _____

602

a,a,a,-Trifluorotoluene _____

VOA RESULTS

| LAB # | CLIENT NAME | SAMPLE ID | |
|---------------------------|---|---|-------------------------|
| EPA METHOD 601 | DATE: 2/17/82 ANALYST: RP INSTRUMENT: Hewlett | EPA METHOD 602 DATE: ANALYST: INSTRUMENT: | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2 Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | CLIENT NAME _____ | |
|---------------------------|---|-------------------------|----------------------------------|
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: 2/14/82 ANALYST: CP INSTRUMENT: Duran | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | N2 | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichloroethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | SYSTEM BLANK | |
|---------------------------|----------------------------------|---------------------|--|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/13/96 ANALYST: JSC INSTRUMENT: Qel |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichlorethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # <u>NACENT BAWIC</u> | | | |
|---------------------------|----------------------------------|-------------------------|---|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/13/76</u> ANALYST: <u>CP</u> INSTRUMENT: <u>Q.L.</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # | | CLIENT NAME | | SAMPLE ID | |
|---------------------------|-------------------------|-------------------------|-------------------------|-----------|--|
| EPA METHOD | DATE: | EPA METHOD | DATE: | | |
| 601 | 2/13/86 | 602 | | | |
| | ANALYST: JSC | | ANALYST: | | |
| | INSTRUMENT: DuPont | | INSTRUMENT: | | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) | | |
| Chloromethane | No | Benzene | | | |
| Bromomethane | | Toluene | | | |
| Vinyl Chloride | | Ethyl benzene | | | |
| Chloroethane | | Chlorobenzene | | | |
| Methylene chloride | | 1,4-Dichlorobenzene | | | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | | | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | | | |
| 1,1-Dichloroethane | | P-Xylene | | | |
| Trans-1,2-Dichloroethene | | M-Xylene | | | |
| Chloroform | | O-Xylene | | | |
| 1,2-Dichlorethane | | | | | |
| 1,1,1-Trichlorethane | | | | | |
| Carbon tetrachloride | | | | | |
| Bromodichlormethane | | | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | | | |
| Trans-1,3-Dichloropropene | | 601 | | | |
| Trichloroethene | | Bromochloromethane | | | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | | | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | | | |
| cis-1,3-Dichloropropene | | 602 | | | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | | | |
| Bromoform | | | | | |
| 1,1,2,2-Tetrachlorethane | | | | | |
| Tetrachlorethylene | | | | | |
| Chlorobenzene | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |

VOA RESULTS

| LAB # | | <u>URGENT BLANK</u> | |
|----------------------------------|---|----------------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: <u>2/13/86</u> ANALYST: <u>CO</u> INSTRUMENT: <u>Gamine</u> | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| <u>Chloromethane</u> | <u>NB</u> | <u>Benzene</u> | |
| <u>Bromomethane</u> | | <u>Toluene</u> | |
| <u>Vinyl Chloride</u> | | <u>Ethyl benzene</u> | |
| <u>Chloroethane</u> | | <u>Chlorobenzene</u> | |
| <u>Methylene chloride</u> | | <u>1,4-Dichlorobenzene</u> | |
| <u>Trichlorofluoromethane</u> | | <u>1,3-Dichlorobenzene</u> | |
| <u>1,1-Dichlorethane</u> | | <u>1,2-Dichlorobenzene</u> | |
| <u>1,1-Dichlorethane</u> | | <u>P-Xylene</u> | |
| <u>Trans-1,2-Dichloroethene</u> | | <u>M-Xylene</u> | |
| <u>Chloroform</u> | | <u>O-Xylene</u> | |
| <u>1,2-Dichlorethane</u> | | | |
| <u>1,1,1-Trichlorethane</u> | | | |
| <u>Carbon tetrachloride</u> | | | |
| <u>Bromodichlormethane</u> | | | |
| <u>1,2-Dichloropropane</u> | | SURROGATE RECOVERIES: | |
| <u>Trans-1,3-Dichloropropene</u> | | 601 | |
| <u>Trichloroethene</u> | | | <u>Bromochloromethane</u> |
| <u>Dibromochloromethane</u> | | | <u>2-Bromo-1-Chloropropane</u> |
| <u>1,1,2-Trichlorethane</u> | | | <u>1,4-Dichlorobutane</u> |
| <u>cis-1,3-Dichloropropene</u> | | 602 | |
| <u>2-Chloroethylvinyl ether</u> | | | <u>a,a,a,-Trifluorotoluene</u> |
| <u>Bromoform</u> | | | |
| <u>1,1,2,2-Tetrachlorethane</u> | | | |
| <u>Tetrachlorethylene</u> | | | |
| <u>Chlorobenzene</u> | | | |
| <u>1,3-Dichlorobenzene</u> | | | |
| <u>1,2-Dichlorobenzene</u> | | | |
| <u>1,4-Dichlorobenzene</u> | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM Blank | |
|---------------------------|----------------------------------|-------------------------------|---|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/12/76 ANALYST: JSC INSTRUMENT: 20 |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichlorethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |
| | | SURROGATE RECOVERIES: | |
| | | 601 | |
| | | Bromochloromethane _____ | |
| | | 2-Bromo-1-Chloropropane _____ | |
| | | 1,4-Dichlorobutane _____ | |
| | | 602 | |
| | | a,a,a,-Trifluorotoluene _____ | |

VOA RESULTS

| LAB # | | <i>URGENT BLANK</i> | |
|---------------------------|----------------------------------|-------------------------------|---|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <i>2/12/76</i> ANALYST: <i>C. J.</i> INSTRUMENT: <i>Qel</i> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | <i>MJ</i> |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichlorethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |
| | | SURROGATE RECOVERIES: | |
| | | 601 | |
| | | Bromochloromethane _____ | |
| | | 2-Bromo-1-Chloropropane _____ | |
| | | 1,4-Dichlorobutane _____ | |
| | | 602 | |
| | | a,a,a,-Trifluorotoluene _____ | |

DAILY QUALITY CONTROL

EPA DC WP 483 conc 2 + EPA DC WP 781 conc 3

2/14/86

B / G

B / G

CERTIFIED
VALUE
(mg/L)

ANALYZED
VALUE

8.100

| | | | |
|---------------------------|------|-------------|-----------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 8.7 / 9.5 | 94 / 103 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.6 / 9.3 | 86 / 93 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 54.2 / 48.2 | 106 / 112 |
| 1,2-Dichloroethane | 27.6 | 23.0 / 37.5 | 83 / 136 |
| 1,1,1-Trichloroethane | 14.3 | 15.0 / 12.3 | 105 / 101 |
| Carbon tetrachloride | 20.0 | 19.5 / 20.7 | 97 / 104 |
| Bromodichloromethane | 7.9 | 8.3 / 9.2 | 106 / 116 |
| 1,2-Dichloropropane | 8.0 | 7.8 / 7.9 | 98 / 99 |
| Trichloroethene | 22.2 | 20.2 / 24.8 | 91 / 112 |
| Dibromochloromethane | 16.7 | 15.5 / 16.0 | 93 / 96 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 9.8 / 10.3 | 99 / 104 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.2 / 7.8 | 100 / 95 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| DATE: 2/13/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | Z RECOVERY | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|-----|--|
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND -- -- | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| | EPA 602 | Benzene | 30.7 | 34.4 | | | 112 | |
| Toluene | | 4.1 | 4.9 | | | 119 | | |
| Ethylbenzene | | 11.5 | 11.8 | | | 102 | | |
| P-Xylene | | 19.1 | 20.5 | | | 108 | | |
| M-Xylene | | 42.6 | 44.3 | | | 104 | | |
| O-Xylene | | 10.6 | 10.6 | | | 100 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/18/86

G

G

| | CERTIFIED VALUE (mg/L) | ANALYZED VALUE | % REC |
|---------------------------|------------------------------|-------------------|-------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 10.2 | 110 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 9.4 | 94 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 64.8 | 151 |
| 1,2-Dichloroethane | 27.6 | 25.9 | 94 |
| 1,1,1-Trichloroethane | 14.3 | 14.7 | 103 |
| Carbon tetrachloride | 20.0 | 20.1 | 100 |
| Bromodichloromethane | 7.9 | 9.2 | 116 |
| 1,2-Dichloropropane | 8.0 | 8.1 | 102 |
| Trichloroethene | 22.2 | 24.0 | 108 |
| Dibromochloromethane | 16.7 | 14.8 | 89 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 10.7 | 108 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.9 | 109 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/12/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 34.8 | | | 113 | | |
| | Toluene | 4.1 | 4.5 | | | 110 | | |
| | Ethylbenzene | 11.5 | 11.2 | | | 97 | | |
| | P-Xylene | 19.1 | 20.8 | | | 109 | | |
| | M-Xylene | 42.6 | 46.6 | | | 109 | | |
| | O-Xylene | 10.6 | 10.5 | | | 99 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

EPA 82 WP 483 conc 2 + EPA 82 WP 781 conc 3

2/13/84

B / G

B / G

| | CERTIFIED VALUE (mg/L) | ANALYZED VALUE | Q ₁₀₀ |
|---------------------------|------------------------------|-------------------|------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 9.0 / 10.4 | 98 / 113 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 9.8 / 10.1 | 98 / 101 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 50.8 / 52.2 | 118 / 121 |
| 1,2-Dichloroethane | 27.6 | 22.7 / 25.2 | 82 / 91 |
| 1,1,1-Trichloroethane | 14.3 | 14.4 / 15.1 | 100 / 106 |
| Carbon tetrachloride | 20.0 | 20.5 / 20.9 | 102 / 105 |
| Bromodichloromethane | 7.9 | 8.4 / 8.0 | 107 / 102 |
| 1,2-Dichloropropane | 8.0 | 8.2 / 8.5 | 103 / 106 |
| Trichloroethene | 22.2 | 21.2 / 24.6 | 95 / 110 |
| Dibromochloromethane | 16.7 | 15.8 / 13.5 | 94 / 81 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 8.3 / 9.5 | 84 / 96 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.7 / 8.6 | 107 / 105 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SPIKE RECOVERY

EPA Method 602

Volatile Organics

SAMPLE # 8602067-04C

UNITS PART 4
860150

2/13/86
RP
D

| COMPOUND | SSR | SR | SA | ZR |
|---------------------|------|------|------|-----|
| Benzene | 38.8 | | 30.7 | 126 |
| Toluene | 6.00 | 0.59 | 4.1 | 132 |
| Ethyl benzene | 12.9 | | 11.5 | 112 |
| 1,4-Dichlorobenzene | | | | |
| 1,3-Dichlorobenzene | | | | |
| 1,2-Dichlorobenzene | | | | |
| O-Xylene | 9.5 | | 10.6 | 90 |
| M-Xylene | 58.7 | | 42.6 | 138 |
| P-Xylene | 22.7 | | 19.1 | 119 |
| Chlorobenzene | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

DUPLICATE ANALYSIS

EPA METHOD 602
VOLATILE ORGANICS

SAMPLE # 8002067-00A

UNITS ug/l

TRIP BLANK

| COMPOUND | RUN#1 | RUN#2 | RPD |
|---------------------|-------|-------|------|
| Benzene | | | |
| Toluene | 0.50 | 1.17 | 72.5 |
| Ethyl benzene | | | |
| 1,4-Dichlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| O-Xylene | | | |
| M-Xylene | | | |
| P-Xylene | | | |
| Chlorobenzene | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD= Relative Percent Difference

SURROGATE RECOVERIES

LAB #: 8602067-01A

SAMPLE ID: 860147

DATE: 2-13-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 111%

2-BROMO-1-CHLOROPROPANE: 130%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 81002067-02A

SAMPLE ID: 860148

DATE: 2-14-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 92%

2-BROMO-1-CHLOROPROPANE: 105%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 86021067-03A

SAMPLE ID: 860129

DATE: 2-13-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 102%

2-BROMO-1-CHLOROPROPANE: 114%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 86002067-04A

SAMPLE ID: 860150

DATE: 2-14-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 83%

2-BROMO-1-CHLOROPROPANE: 86%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602007-05A

SAMPLE ID: 860151

DATE: 2-14-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 127%

2-BROMO-1-CHLOROPROPANE: 158%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602007-C6A

SAMPLE ID: TRIP BLANK

DATE: 2-13-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 121%

2-BROMO-1-CHLOROPROPANE: 109%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 86020107-01C

SAMPLE ID: 860147

DATE: 2-12-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 89%

SURROGATE RECOVERIES

LAB #: 8602067-02C

SAMPLE ID: 860148

DATE: 2-12-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 298% *

* poor baseline
(layer of solvent on top with oil
interspersed in the water)

SURROGATE RECOVERIES

LAB #: 8602067-03C

SAMPLE ID: 860149

DATE: 2-12-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 113%

SURROGATE RECOVERIES

LAB #: 8602007-04C

SAMPLE ID: 860150

DATE: 2-12-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 105%

SURROGATE RECOVERIES

LAB #: 8608007-05C

SAMPLE ID: 860151

DATE: 2-13-80

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 90%

SURROGATE RECOVERIES

LAB #: 8002067-06A

SAMPLE ID: TRIP BLANK

DATE: 2-13-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 98%, 103%

RADIAN
CORPORATION10395 OLD PLACERVILLE ROAD
SACRAMENTO, CALIFORNIA 95827

SAM

8662070

CHAIN OF CUSTODY RECORD

FIELD SECTION

CLIENT NAME General Dynamics PROJECT ADDRESS Ft Worth Texas Plant 4 AFB
Number Street City ZipSAMPLED BY NEIL ROBINSON CONTAINERS OBTAINED FROM I-Chem
Name (PRINT) OrganizationPRESERVATIVE USED NONE STORAGE TEMPERATURE ☐ Ambient ☒ 4° C ☐ -10° C Other _____☒ HAZARDOUS ☐ NON-HAZARDOUS SPECIAL HANDLING INSTRUCTIONS _____FIELD REMARKS Total Eight 1000 ml DK Glass Bottles

| COLLECTOR'S SAMPLE NO. | DATE | COMP. | GRAB | TYPE (soil, H ₂ O) | FIELD DATA | | | STATION LOCATION (grid, depth, etc.) | NO. OF CON- TAINERS | ANALYSIS REQUIRED | | | REMARKS |
|---------------------------|------|-------|------|----------------------------------|------------|--|--|---|---------------------------|-------------------|-----|--|------------|
| | | | | | | | | | | | | | |
| 860147 | | | X | H ₂ O | | | | - | | EPA | 625 | | two each ✓ |
| 860148 | | | X | H ₂ O | | | | - | | EPA | 625 | | " " ✓ |
| 860149 | | | X | H ₂ O | | | | - | | EPA | 625 | | " " ✓ |
| 860150 | | | X | H ₂ O | | | | - | | EPA | 625 | | " " ✓ |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

Released by Neil Robinson RADIANT 2-11-86 Wanda L. Brown 2/12/86 9:15
Organization Date/Time Received by Organization Date/Time

Released by Organization Date/Time Received by Organization Date/Time

Released by Organization Date/Time Received by Organization Date/Time

LABORATORY SECTION

TEMPERATURE RECEIVED 4° C FEDX AIRBILL # 321175201 HAND DELIVERED _____

ANALYSIS RECORD

| TYPE OF ANALYSIS | PERFORMED BY (Signed) | DATE OF ANALYSIS | RECORDED (LAB BOOK NO.) | COMMENTS |
|---------------------|--------------------------|---------------------|----------------------------|----------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

RADIAN
CORPORATION

Austin

86 02-075
EPA601 - 860158, 860157, 860156, 860152, 860153, 860154, 860155
EPA602 - 860158, 860157, 860156, 860152, 860153, 860154, 860155

CHAIN OF CUSTODY RECORD

EPA601 - FIELD BLANK

TRIP BLANK

EPA602 - FIELD BLANK

Field Sample No. _____

Company Sampled/Address

General Dynamics - Foothill, Plant 4

Sample Point Description

Ground Water

Stream Characteristics:

Temperature _____

Flow _____

pH _____

Visual Observations/Comments

NOTE: TRIP HAS BUBBLE

Collector's Name

A. Morrill

Date/Time Sampled

2-12-86

Amount of Sample Collected

(28) 40 ml glass

(1) TRIP BLANK (2) FIELD BLANK

Sample Description

Ground Water

Store at:

☐ Ambient

☐ 5°C

☐ -10°C

☒ Other

4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession

Organization Name

Radian Corp.

Received By

Date Received

Time

Transported By

Arthur Morrill

Lab Sample No.

Comments

Inclusive Dates of Possession

2-12-86

Organization Name

RIS

Received By

Willie

Date Received

Time

Transported By

Ed Cox

Lab Sample No.

Comments

Inclusive Dates of Possession

Organization Name

Received By

Date Received

Time

Transported By

Lab Sample No.

Comments

Inclusive Dates of Possession

CHAIN OF CUSTODY RECORD

P-23
HM-101

Field Sample No. _____

Company Sampled/Address General Dynamics Plant 4
Sample Point Description P-23, HM-101

Stream Characteristics:

Temperature _____ Flow _____ pH 6-7

Visual Observations/Comments _____

Collector's Name TKW Date/Time Sampled 4-18-86

Amount of Sample Collected _____

Sample Description 4 1 Liter amber glass, 4 1 Liter plastic, 12 40 ml wa-vialStore at: ☐ Ambient ☒ 5°C ☐ -10°C ☐ Other _____☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portionsOther Instructions - Special Handling - Hazards potentially hazardousAnalyze for Metals, EPA 601, 602, 625 compoundsAnalyze trip blanks (2) for 601 & 602☐ Hazardous sample (see below)☐ Non-hazardous sample☐ Toxic☐ Skin irritant☐ Flammable (FP < 40°C)☐ Pyrophoric☐ Lachrymator☐ Shock sensitive☐ Acidic☐ Biological☐ Carcinogenic - suspect☐ Caustic☐ Peroxide☐ Radioactive☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RASReceived By Mike Munda Date Received 4-12-86 Time 1900Transported By TKW Lab Sample No. _____Comments 2 liters to SAC 201605

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Volatile Organics

DETECTION LIMITS

| METHOD 601 | METHOD | | |
|--------------------------|-----------|--------|------|
| | DETECTION | | |
| COMPOUND | LIMIT | | |
| | ug/L | | |
| | -07-09 | -01-03 | -04 |
| Chloromethane | 0.08 | 80.0 | 8.0 |
| Bromomethane | 1.18 | 1180 | 118 |
| Vinyl Chloride | 0.18 | 180 | 18 |
| Chloroethane | 0.52 | 520 | 52 |
| Methylene Chloride | 0.25 | 250 | 25 |
| Trichlorofluoromethane | 0.10 | 100 | 10 |
| 1,1-Dichloroethene | 0.13 | 130 | 13 |
| 1,1-Dichloroethane | 0.07 | 70 | 7.0 |
| Trans-1,2-Dichloroethene | 0.10 | 100 | 10 |
| Chloroform | 0.05 | 50 | 5.0 |
| 1,2-Dichloroethane | 0.03 | 30 | 3.0 |
| 1,1,1-Trichloroethane | 0.03 | 30 | 3.0 |
| Carbon Tetrachloride | 0.12 | 120 | 12.0 |
| Bromodichloromethane | 0.10 | 100 | 10.0 |
| 1,2-Dichloropropane | 0.04 | 40 | 4.0 |
| Trichloroethene | 0.12 | 120 | 12.0 |
| Dibromochloromethane | 0.09 | 90 | 9.0 |
| 2-Chloroethylvinyl Ether | 0.13 | 130 | 13.0 |
| Bromoform | 0.20 | 200 | 20.0 |
| Tetrachloroethene | 0.03 | 30 | 3.0 |
| Chlorobenzene | 0.25 | 250 | 25.0 |
| 1,3-Dichlorobenzene | 0.32 | 320 | 32.0 |
| 1,2-Dichlorobenzene | 0.15 | 150 | 15.0 |
| 1,4-Dichlorobenzene | 0.24 | 240 | 24.0 |

work order: E662675

Volatile Organics

DETECTION LIMITS

| METHOD 601 COMPOUND | METHOD DETECTION LIMIT ug/L | | |
|--------------------------|--------------------------------------|--|--|
| | -06 | | |
| Chloromethane | 40 | | |
| Bromomethane | 4720 | | |
| Vinyl Chloride | 90 | | |
| Chloroethane | 2600 | | |
| Methylene Chloride | 125 | | |
| Trichlorofluoromethane | 50 | | |
| 1,1-Dichloroethene | 65 | | |
| 1,1-Dichloroethane | 35 | | |
| Trans-1,2-Dichloroethene | 50 | | |
| Chloroform | 25 | | |
| 1,2-Dichloroethane | 15 | | |
| 1,1,1-Trichloroethane | 15 | | |
| Carbon Tetrachloride | 60 | | |
| Bromodichloromethane | 50 | | |
| 1,2-Dichloropropane | 20 | | |
| Trichloroethene | 60 | | |
| Dibromochloromethane | 45 | | |
| 2-Chloroethylvinyl Ether | 65 | | |
| Bromoform | 100 | | |
| Tetrachloroethene | 15 | | |
| Chlorobenzene | 125 | | |
| 1,3-Dichlorobenzene | 160 | | |
| 1,2-Dichlorobenzene | 75 | | |
| 1,4-Dichlorobenzene | 180 | | |

work order: 8662075

Detection Limits

Volatile Organics

Method 602

| Compound | Detection Limit | | | |
|---------------------|---------------------|----------|------|-----------|
| | 0.1-0.5 -0.1-0.9 | -0.2-0.3 | -0.4 | -0.6 ug/l |
| Benzene | 0.2 | 200 | 10 | 20 |
| Toluene | 0.2 | 200 | 10 | 20 |
| Ethylbenzene | 0.2 | 200 | 10 | 20 |
| 1,4-Dichlorobenzene | 0.3 | 300 | 15 | 30 |
| 1,3-Dichlorobenzene | 0.4 | 400 | 20 | 40 |
| 1,2-Dichlorobenzene | 0.4 | 400 | 20 | 40 |
| chlorobenzene | 0.2 | 200 | 10 | 20 |

VOA RESULTS

| LAB # | | SYSTEM BLANK | |
|---------------------------|--|---------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/15/61 ANALYST: C INSTRUMENT: J | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | N2 | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | CLIENT NAME _____ | |
|---------------------------|---|-------------------------|----------------------------------|
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: 2/15/86 ANALYST: <i>WJ</i> INSTRUMENT: <i>Hewlett Packard</i> | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | NP | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| Trans-1,2-Dichloroethene | | P-Xylene | |
| Chloroform | | M-Xylene | |
| 1,2-Dichlorethane | | O-Xylene | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | SURROGATE RECOVERIES: | |
| 1,2-Dichloropropane | | 601 | |
| Trans-1,3-Dichloropropene | | Bromochloromethane | |
| Trichloroethene | | 2-Bromo-1-Chloropropane | |
| Dibromochloromethane | | 1,4-Dichlorobutane | |
| 1,1,2-Trichlorethane | | 602 | |
| cis-1,3-Dichloropropene | | a,a,a,-Trifluorotoluene | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # <u>5750 Blank</u> | | | |
|---------------------------|----------------------------------|---------------------|--|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/7/21</u> ANALYST: <u>C</u> INSTRUMENT: <u>Q</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601

Bromochloromethane _____

2-Bromo-1-Chloropropane _____

1,4-Dichlorobutane _____

602

a,a,a,-Trifluorotoluene _____

VOA RESULTS

| LAB # <u>NEZART Blank</u> | | | |
|----------------------------------|----------------------------------|----------------------------|--|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: <u>2/17/86</u> ANALYST: <u>CJ</u> INSTRUMENT: <u>Qel</u> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| <u>Chloromethane</u> | | <u>Benzene</u> | <u>ND</u> |
| <u>Bromomethane</u> | | <u>Toluene</u> | |
| <u>Vinyl Chloride</u> | | <u>Ethyl benzene</u> | |
| <u>Chloroethane</u> | | <u>Chlorobenzene</u> | |
| <u>Methylene chloride</u> | | <u>1,4-Dichlorobenzene</u> | |
| <u>Trichlorofluoromethane</u> | | <u>1,3-Dichlorobenzene</u> | |
| <u>1,1-Dichlorethane</u> | | <u>1,2-Dichlorobenzene</u> | |
| <u>1,1-Dichloethane</u> | | <u>P-Xylene</u> | |
| <u>Trans-1,2-Dichloroethane</u> | | <u>M-Xylene</u> | |
| <u>Chloroform</u> | | <u>O-Xylene</u> | |
| <u>1,2-Dichloethane</u> | | | |
| <u>1,1,1-Trichloethane</u> | | | |
| <u>Carbon tetrachloride</u> | | | |
| <u>Bromodichlormethane</u> | | | |
| <u>1,2-Dichloropropane</u> | | SURROGATE RECOVERIES: | |
| <u>Trans-1,3-Dichloropropene</u> | | 601 | |
| <u>Trichloroethene</u> | | Bromochloromethane | |
| <u>Dibromochloromethane</u> | | 2-Bromo-1-Chloropropane | |
| <u>1,1,2-Trichloethane</u> | | 1,4-Dichlorobutane | |
| <u>cis-1,3-Dichloropropene</u> | | 602 | |
| <u>2-Chloroethylvinyl ether</u> | | a,a,a,-Trifluorotoluene | |
| <u>Bromoform</u> | | | |
| <u>1,1,2,2-Tetrachloethane</u> | | | |
| <u>Tetrachlorethylene</u> | | | |
| <u>Chlorobenzene</u> | | | |
| <u>1,3-Dichlorobenzene</u> | | | |
| <u>1,2-Dich. orobenzene</u> | | | |
| <u>1,4-Dichlorobenzene</u> | | | |

VOA RESULTS

| LAB # | | SYSTEM BLANK | |
|---------------------------|---|-------------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/14/96 ANALYST: JSC INSTRUMENT: Shimadzu | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <i>N/D</i> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | SURROGATE RECOVERIES: | |
| 1,2-Dichloropropane | | 601 | |
| Trans-1,3-Dichloropropene | | Bromochloromethane | |
| Trichloroethene | | 2-Bromo-1-Chloropropane | |
| Dibromochloromethane | | 1,4-Dichlorobutane | |
| 1,1,2-Trichlorethane | | 602 | |
| cis-1,3-Dichloropropene | | a,a,a,-Trifluorotoluene | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---------------------------|----------------------|---------------------|----------------------|
| LAB # <u>REGENT BLANK</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| DATE: <u>2/14/96</u> | | DATE: _____ | |
| ANALYST: <u>CP</u> | | ANALYST: _____ | |
| INSTRUMENT: <u>Surine</u> | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>ND</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethyvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |
| | | | |

SURROGATE RECOVERIES:

601

Bromochloromethane _____

2-Bromo-1-Chloropropane _____

1,4-Dichlorobutane _____

602

a,a,a,-Trifluorotoluene _____

VOA RESULTS

| LAB # _____ | | SYSTEM BLANK | |
|---------------------------|----------------------|---------------------|----------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| DATE: 4/14/86 | | DATE: _____ | |
| ANALYST: JSC | | ANALYST: _____ | |
| INSTRUMENT: Sundette | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601

Bromochloromethane _____

2-Bromo-1-Chloropropane _____

1,4-Dichlorobutane _____

602

a,a,a,-Trifluorotoluene _____

VOA RESULTS

| LAB # | | AGENT BANK | |
|---------------------------|---|-------------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/14/86 ANALYST: CP INSTRUMENT: Bausch & Lomb | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | ND | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | a,a,a,-Trifluorotoluene | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM BLANK | |
|---------------------------|----------------------|---------------------|------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| ===== | | ===== | |
| EPA METHOD | DATE: | EPA METHOD | DATE: 2/4/72 |
| 601 | ANALYST: | 602 | ANALYST: <i>JK</i> |
| | INSTRUMENT: | | INSTRUMENT: <i>Qel</i> |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | <i>ND</i> |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

| | |
|-----------------------|-------------------------------|
| SURROGATE RECOVERIES: | |
| 601 | Bromochloromethane _____ |
| | 2-Bromo-1-Chloropropane _____ |
| | 1,4-Dichlorobutane _____ |
| 602 | a,a,a,-Trifluorotoluene _____ |

VOA RESULTS

| LAB # | | REPORT DATE | |
|---------------------------|----------------------------------|-------------------------|--|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/14/81 ANALYST: C INSTRUMENT: Del |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | N ₂ |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichloroethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM BLANK | |
|---------------------------|----------------------------------|---------------------|--|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: ANALYST: INSTRUMENT: | EPA METHOD 602 | DATE: 2/13/86 ANALYST: JS 6 INSTRUMENT: QD |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethane | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichlorethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SURROGATE RECOVERIES:

601 Bromochloromethane _____
2-Bromo-1-Chloropropane _____
1,4-Dichlorobutane _____

602 a,a,a,-Trifluorotoluene _____

VOA RESULTS

| LAB # _____ | | CLIENT NAME _____ | |
|---------------------------|----------------------|---------------------|----------------------|
| SAMPLE ID _____ | | DATE: _____ | |
| EPA METHOD 601 | | ANALYST: _____ | |
| DATE: _____ | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/17/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | E | | | E | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 35.2 | | | 115 | | |
| | Toluene | 4.1 | 4.8 | | | 119 | | |
| | Ethylbenzene | 11.5 | 11.9 | | | 103 | | |
| | P-Xylene | 19.1 | 20.7 | | | 109 | | |
| | M-Xylene | 42.6 | 48.6 | | | 114 | | |
| | O-Xylene | 10.6 | 8.8 | | | 83 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/15/86

| | CERTIFIED VALUE (mg/L) | G ANALYZED VALUE | G % REC |
|---------------------------|------------------------------|------------------------|------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 10.1 | 110 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 7.9 | 79 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 62.1 | 144 |
| 1,2-Dichloroethane | 27.6 | 23.7 | 86 |
| 1,1,1-Trichloroethane | 14.3 | 13.4 | 94 |
| Carbon tetrachloride | 20.0 | 16.4 | 82 |
| Bromodichloromethane | 7.9 | 8.5 | 107 |
| 1,2-Dichloropropane | 8.0 | 7.8 | 98 |
| Trichloroethene | 22.2 | 22.6 | 102 |
| Dibromochloromethane | 16.7 | 13.8 | 83 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 9.8 | 99 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.8 | 107 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/14/86

B / G

B / G

CERTIFIED
VALUE
(mg/L)

ANALYZED
VALUE

8.100

| | | | |
|---------------------------|------|-------------|-----------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 8.7 / 9.5 | 94 / 103 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.6 / 9.3 | 86 / 93 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 54.2 / 48.2 | 106 / 112 |
| 1,2-Dichloroethane | 27.6 | 23.0 / 37.5 | 83 / 136 |
| 1,1,1-Trichloroethane | 14.3 | 15.0 / 12.3 | 105 / 101 |
| Carbon tetrachloride | 20.0 | 19.5 / 20.7 | 97 / 104 |
| Bromodichloromethane | 7.9 | 8.3 / 9.2 | 106 / 116 |
| 1,2-Dichloropropane | 8.0 | 7.8 / 7.9 | 98 / 99 |
| Trichloroethene | 22.2 | 20.2 / 24.8 | 91 / 112 |
| Dibromochloromethane | 16.7 | 15.5 / 16.0 | 93 / 96 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 9.8 / 10.3 | 99 / 104 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.2 / 7.8 | 100 / 95 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/13/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 34.4 | | | 112 | | |
| | Toluene | 4.1 | 4.9 | | | 119 | | |
| | Ethylbenzene | 11.5 | 11.8 | | | 102 | | |
| | P-Xylene | 19.1 | 20.5 | | | 108 | | |
| | M-Xylene | 42.6 | 44.3 | | | 104 | | |
| | O-Xylene | 10.6 | 10.6 | | | 100 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/14/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | % RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 35.6 | | | 116 | | |
| | Toluene | 4.1 | 4.6 | | | 111 | | |
| | Ethylbenzene | 11.5 | 11.4 | | | 99 | | |
| | P-Xylene | 19.1 | 20.6 | | | 108 | | |
| | M-Xylene | 42.6 | 55.5 | | | 130 | | |
| | O-Xylene | 10.6 | 8.8 | | | 83 | | |
| | | | | | | | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

2/15/66
 CE G

| EPA METHOD 601 Volatile Organics | 8602075-07A PART 4 860158 | | | | | | | |
|-------------------------------------|---------------------------------|------|------|-----|-----|----|----|----|
| COMPOUNDS | SSR | SR | SA | ZR | SSR | SR | SA | ZR |
| Chloromethane | | | | | | | | |
| Bromomethane | | | | | | | | |
| Vinyl chloride | | | | | | | | |
| Chloroethane | | | | | | | | |
| Methylene chloride | 9.0 | | 9.2 | 98 | | | | |
| Trichlorofluoromethane | | | | | | | | |
| 1,1-Dichloroethene | 7.3 | | 10.0 | 73 | | | | |
| 1,1-Dichloroethane | | | | | | | | |
| trans-1,2-Dichloroethene | 5.2 | | 5.4 | 97 | | | | |
| Chloroform | 65.6 | | 43.0 | 153 | | | | |
| 1,2-Dichloroethane | 24.3 | | 27.6 | 88 | | | | |
| 1,1,1-Trichloroethane | 15.3 | 3.31 | 14.3 | 107 | | | | |
| Carbon Tetrachloride | 21.0 | | 20.0 | 105 | | | | |
| Bromodichloroemethane | 9.0 | | 7.9 | 113 | | | | |
| 1,2-Dichloropropane | 8.5 | | 8.0 | 106 | | | | |
| Trichloroethene | 24.0 | | 22.2 | 108 | | | | |
| Dibromochloromethane | 15.3 | | 16.7 | 92 | | | | |
| 1,1,2-Trichloroethane | | | | | | | | |
| cis-1,2-Dichloropropene | | | | | | | | |
| 2-Chlorethylvinyl ether | | | | | | | | |
| Bromoform | 10.7 | | 9.9 | 108 | | | | |
| 1,1,2,2-Tetrachlorethane | | | 10.0 | | | | | |
| Tetrachlorethylene | | | 6.2 | | | | | |
| Chlorobenzene | 10.3 | | 8.2 | 106 | | | | |
| 1,3-Dichlorobenzene | | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

SPIKE RECOVERY

EPA Method 602

Volatile Organics

SAMPLE # 8602075-01

UNITS PLANT 4
860152

2/13/86
RP
D

| COMPOUND | SSR | SR | SA | ZR |
|---------------------|------|----|------|-----|
| Benzene | 41.9 | | 30.7 | 136 |
| Toluene | 5.74 | | 4.1 | 140 |
| Ethyl benzene | 11.1 | | 11.5 | 96 |
| 1,4-Dichlorobenzene | | | | |
| 1,3-Dichlorobenzene | | | | |
| 1,2-Dichlorobenzene | | | | |
| O-Xylene | 12.5 | | 10.6 | 118 |
| M-Xylene | 44.2 | | 42.6 | 104 |
| P-Xylene | 20.0 | | 19.1 | 104 |
| Chlorobenzene | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

SURROGATE RECOVERIES

LAB #: ECCL2C75-C1A

SAMPLE ID: ECCL152

DATE: 2-14-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 9640

2-BROMO-1-CHLOROPROPANE: 95%

602/802

a, a, a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELC2075-L2A

SAMPLE ID: ELC153

DATE: 2-14-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 98%, 107%

2-BROMO-1-CHLOROPROPANE: 110%, 123%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELC2075-C3A

SAMPLE ID: ELC154

DATE: 2-14-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 100%

2-BROMO-1-CHLOROPROPANE: 108%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELC02C75-C4A

SAMPLE ID: ELC0155

DATE: 2-14-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 108%

2-BROMO-1-CHLOROPROPANE: 137%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELCC2075-CSA

SAMPLE ID: ELCC156

DATE: 2-14-86

INSTRUMENT: 3

601/8010

BROMOCHLOROMETHANE: 100%

2-BROMO-1-CHLOROPROPANE: 121%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602075-CKA

SAMPLE ID: 860157

DATE: 2-14-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 114%

2-BROMO-1-CHLOROPROPANE: 118%

602/802

a, a, a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELCC02075-07A

SAMPLE ID: SCC158

DATE: 2-15-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 97%

2-BROMO-1-CHLOROPROPANE: 104%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602075-08A

SAMPLE ID: field blank

DATE: 2-15-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 96%

2-BROMO-1-CHLOROPROPANE: 96%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8663075-USA

SAMPLE ID: trip blank

DATE: 2-14-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 100%

2-BROMO-1-CHLOROPROPANE: 100%

602/802

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: ELCC3075-C1C

SAMPLE ID: ELCC152

DATE: 2-17-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 98%

SURROGATE RECOVERIES

LAB #: ELC2075-C20

SAMPLE ID: ELC153

DATE: 2-14-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 104%

SURROGATE RECOVERIES

LAB #: E1002075-C30

SAMPLE ID: E100154

DATE: 2-13-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 10740

SURROGATE RECOVERIES

LAB #: 866275-040

SAMPLE ID: 840155

DATE: 2-14-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a, a, a-TRIFLUOROTOLUENE: 108%

SURROGATE RECOVERIES

LAB #: 8603075-CSC

SAMPLE ID: 566156

DATE: 2-17-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 165%, 166%

SURROGATE RECOVERIES

LAB #: ECG2075-060

SAMPLE ID: EC0157

DATE: 2-13-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a, a, a-TRIFLUOROTOLUENE: 104%

SURROGATE RECOVERIES

LAB #: ELCAL75-670

SAMPLE ID: EL158

DATE: 2-17-80

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 107%

SURROGATE RECOVERIES

LAB #: E602075-CSB

SAMPLE ID: field blank

DATE: 2-14-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a,a,a-TRIFLUOROTOLUENE: 103%

SURROGATE RECOVERIES

LAB #: E662075-C9A

SAMPLE ID: trip blank

DATE: 2-14-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/802

a, a, a-TRIFLUOROTOLUENE: 98%

Work order: 8602075-02A

Sample ID: 860153

RADIAN
CORPORATION

DUPLICATE ANALYSIS

| EPA Method 601 Volatile Organics | | | | | | |
|-------------------------------------|-------|-------|-----|-------|-------|-----|
| COMPOUND $\mu\text{g/L}$ | RUN#1 | RUN#2 | RPD | RUN#1 | RUN#2 | RPD |
| Chloromethane | | | | | | |
| Bromomethane | | | | | | |
| Vinyl chloride | 968 | 1114 | 14 | | | |
| Chloroethane | | | | | | |
| Methylene chloride | | | | | | |
| Trichlorofluoromethane | | | | | | |
| 1,1-Dichloroethene | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| trans-1,2-Dichloroethene | 26206 | 29709 | 13 | | | |
| Chloroform | | | | | | |
| 1,2-Dichloroethane | | | | | | |
| 1,1,1-Trichloroethane | | | | | | |
| Carbon Tetrachloride | | | | | | |
| Bromodichloroemethane | | | | | | |
| 1,2-Dichloropropane | | | | | | |
| Trichloroethene | 2274 | 3351 | 39 | | | |
| Dibromochloromethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| cis-1,2-Dichloropropene | | | | | | |
| 2-Chloroethylvinyl ether | | | | | | |
| Bromoform | | | | | | |
| 1,1,2,2-Tetrachlorethane | | | | | | |
| Tetrachlorethylene | 150 | 237 | 45 | | | |
| Chlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |

$$\text{RPD} = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD = Relative Percent Difference

5 411

DUPLICATE ANALYSIS

| Sample ID: 860156 | | | |
|----------------------|-------|-------|-----|
| EPA METHOD 602 | | | |
| VOLATILE ORGANICS | | | |
| SAMPLE # 8602075-05C | | | |
| UNITS kg/L | | | |
| COMPOUND | RUN#1 | RUN#2 | RPD |
| Benzene | | | |
| Toluene | 1.43 | 1.07 | 29 |
| Ethyl benzene | | | |
| 1,4-Dichlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| O-Xylene | | | |
| M-Xylene | | | |
| P-Xylene | | | |
| Chlorobenzene | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD= Relative Percent Difference

RADIAN CORPORATION

10395 OLD PLACERVILLE ROAD
SACRAMENTO, CALIFORNIA 95827

8602078

CHAIN OF CUSTODY RECORD

FIELD SECTION

CLIENT NAME General Dynamics PROJECT ADDRESS US AIR FORCE, PLANT 4, FT. WORTH
Number Street City Zip

SAMPLED BY ARTHUR MORRILL RADIAN CONTAINERS OBTAINED FROM I-CHEM
Name (PRINT) Organization

PRESERVATIVE USED NONE STORAGE TEMPERATURE ☐ Ambient ☒ 4° C ☐ -10° C Other _____

☒ HAZARDOUS ☐ NON-HAZARDOUS SPECIAL HANDLING INSTRUCTIONS _____

FIELD REMARKS _____

| COLLECTORS SAMPLE NO. | DATE | COMP. | GRAB | TYPE (soil, H ₂ O) | FIELD DATA | | | STATION LOCATION (grid, depth, etc.) | NO. OF CON- TAINERS | ANALYSIS REQUIRED | | | | REMARKS |
|--------------------------|------|-------|------|----------------------------------|------------|--|--|---|---------------------------|-------------------|--|--|--|---------|
| | | | | | | | | | | | | | | |
| 860152 | 2/2 | | X | H ₂ O | | | | HM-5 | 2 | | | | | |
| 860153 | 2/2 | | X | H ₂ O | | | | DRAIN PIPE | 2 | | | | | |
| 860154 | 2/2 | | X | H ₂ O | | | | French Drain 1 | 2 | | | | | |
| 860155 | 2/2 | | X | H ₂ O | | | | French Drain 2 | 2 | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Arthur Morrill Radian 12 FEB. 86 C. Rasmussen RAS 2/12/86 9:55
Released by Organization Date/Time Received by Organization Date/Time

Released by Organization Date/Time Received by Organization Date/Time

Released by Organization Date/Time Received by Organization Date/Time

LABORATORY SECTION

TEMPERATURE RECEIVED _____ FEDX AIRBILL# _____ HAND DELIVERED _____

ANALYSIS RECORD

| TYPE OF ANALYSIS | PERFORMED BY (Signed) | DATE OF ANALYSIS | RECORDED (LAB BOOK NO.) | COMMENTS |
|---------------------|--------------------------|---------------------|----------------------------|----------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Original (Page 1)

Laboratory (Page 2)

Samples (Page 3)

5 413

RADIAN
CORPORATION

Austin

Hydrocarbons - 860156, 860158, 860157

Oil and Grease - 860156, 860158, 860157

CHAIN OF CUSTODY RECORD

Metals - 860152, 860153, 860154, 860155

Field Sample No. _____

Company Sampled/Address

General Dynamics, Fort Worth, Plant 4

Sample Point Description

Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name

Arthur Monell

Date/Time Sampled

2-12-86

Amount of Sample Collected

(6) MASON JARS, (4) 500 ml plastic

Sample Description

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name

Radian Corp.

Received By

Date Received

Time

Transported By

Arthur Monell

Lab Sample No.

86-02-079

Comments

Inclusive Dates of Possession

2-12-86

Organization Name

MS

Received By

Steve Kennedy

Date Received

2-13-86

Time

11:00

Transported By

Steve Kennedy

Lab Sample No.

8602079

Comments

Inclusive Dates of Possession

Organization Name

Received By

Date Received

Time

Transported By

Lab Sample No.

Comments

Inclusive Dates of Possession

AA, Oil and Grease, HC QA/QC DATA

FOR W.O. 86-01-240 86-02-087
86-02-031 86-02-041

UNITS $\mu\text{g/ml}$

PLANT 4 86-01-240 samples 01-09

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS |
|---------|---------------|-------------|------------|-----|--------------------|--------|-----|------------------|----------------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2/8/86 | .041 | .040 | 103 | an dup 01 A | <.005 | NIC | an sp 01 A | <.005 | .024 | .024 | 100 | prep bl <.005 |
| | idl=.005 | .041 | .040 | 103 | | | | | | | | | cal bl <.005 |
| | | .040 | .040 | 100 | | | | | | | | | |
| Hg | 2/3/86 | .0054 | .0050 | 108 | dig dup 09 A | <.0002 | NIC | dig sp 09 A | <.0002 | .0028 | .0020 | 140 | prep bl ,0004* |
| | idl=.0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Pb | 2-11/86 | .042 | .045 | 93 | an dup 09 A | <.002 | NIC | an sp 09 A | <.002 | .019 | .024 | 79 | prep bl ,002- |
| | idl=.002 | .046 | .045 | 102 | | | | | | | | | cal bl <.002- |
| | | | | | | | | | | | | | |
| 5c | 2/9/86 | .044 | .050 | 88 | an dup 05 A | <.003 | NIC | an sp 05 A | <.003 | .018 | .024 | 75 | prep bl <.003 |
| | idl=.003 | .044 | .050 | 88 | | | | an sp 05 1:10 | <.003 | .022 | .024 | 92 | cal bl <.003 |
| | | | | | | | | dilution | | | | | |
| Hg | 2/8/86 | .0054 | .0050 | 108 | dig dup 03 A | <.0002 | NIC | dig sp 04 A | <.0002 | .0024 | .0020 | 120 | <.0002 prep bl |
| | idl=.0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |

an dup = analytical duplicate
dig dup = digestion duplicate
i.d.l. = instrument detection limit

an sp = analytical spike
dig sp = digestion spike or matrix

* indicates value is less than 5x instrument detection limit

NIC = not calculable

UNITS ug/gal

PLANT 4 86-02-031 samples (01-, 02, 03, 06)-011 Grease 02, 03 METALS

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS | |
|----------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|----------------|-------|-------|-------|--------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | | %R |
| As | 2-19-86 | .039 | .040 | 98 | an dup 02 G | <.005 | <.005 | NC | an. sp 02 G | 5005 | .023 | .024 | 96 | prep bl <.005 |
| | idl = .005 | .040 | .040 | 100 | | | | | | | | | | cal bl <.005 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | — | | | | dig sp 03 G | 50002 | .0019 | .0020 | 95 | prep bl <.0002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup 02 G | .033 | .030 | 9.4 | an. sp 02 G | .033 | .053 | .024 | 83 | prep bl <.002 |
| | idl = .002 | .045 | .045 | 100 | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | — | | | | an. sp 02 G | .003 | .021 | .024 | 75 | prep bl <.002 |
| | idl = .002 | .040 | .040 | 100 | | | | | | | | | | cal bl <.002 |
| | | .039 | .040 | 98 | | | | | | | | | | |
| oil and Grease | 2-14-86 | 197 | 200 | 99 | — | | | | — | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| HC | 2-26-86 | 430 | 415 | 104 | | | | | | | | | | |
| | idl = 1 | 208 | 245 | 118 | | | | | | | | | | |

an. sp = analytical spike

dig sp = predigested matrix spike

idl = instrument detection limit

an dup = analytical duplicate

dig dup = digestion duplicate

* indicates value is less than 5x instrument detection limit

NC = not calculable

UNITS ug/ml

PLANT 4 86-02-041 samples 01-06

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|--------|-------|--------------------------------|----------------|-------|-------|-----|-------------------|--------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | | |
| As | 2-19-86 | .039 | .040 | 98 | an dup 01 E | <.005 | <.005 | an sp 01 E | <.005 | .022 | .024 | 93 | prep bl <.005 | |
| | idl=.005 | .037 | .040 | 93 | | | | | | | | | cal bl <.005 | |
| | | .035 | .040 | 88 | | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup 06 E | <.002* | NC | dig sp 05 E | <.002 | .0022 | .0020 | 110 | prep bl <.0002 | |
| | idl=.0002 | .0044 | .0040 | 110 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup 01 E | <.002 | NC | an sp 01 E 1:10 dilution | <.002 | .021 | .024 | 88 | prep bl <.002 | |
| | idl=.002 | .045 | .045 | 100 | | | | | | | | | | |
| | | .048 | .045 | 107 | | | | | | | | | | |
| SC | 2-17-86 | .042 | .040 | 105 | - | | | an sp 03 E | *.003 | .021 | .024 | 75 | prep bl <.002 | |
| | idl=.002 | .039 | .040 | 98 | | | | | | | | | cal bl <.002 | |
| | | | | | | | | | | | | | | |
| oil and grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | | |
| | idl=1 | 197 | 200 | 99 | | | | | | | | | | |

* indicates value is less than 5x instrument detection limit
NC = not calculable

idl = instrument det. limit

an dup = analytical duplicate
dig dup = digestion duplicate

an sp = analytical spike
dig sp = digestion spike or matrix spike

UNITS ug/gal

PLANT 4 86-02-060 samples 01-05

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|-------------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|-------------------------------|-------|-------|-------|-----|-------------------------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP # | SAMP | DUPL | RPD | SAMP # | SR | SSR | SA | %R | |
| As | 2-15-86 | .029 | .027 | 107 | dig dup 01C | .002* | .003* | 40 | dig sp 02C | .006* | .023 | .020 | 85 | prep bl <.002 |
| | idl = .002 | .042 | .040 | 105 | an. dup 03C | .006* | .003* | 67 | an sp 05A 1:10 dil | .002 | .024 | .024 | 100 | cal bl <.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | 05A | .0002 | .0020 | .0020 | 100 | prep bl <.0002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | dig dup 01C | .034 | .031 | 9.1 | dig sp 02C | .27 | .29 | .020 | 100 | prep bl .004 cal bl <.002 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | dig dup 01C | .003* | .002* | 40 | dig sp 02C | .002 | .005 | .010 | 50 | prep bl <.002 cal bl <.002 |
| | idl = .002 | .040 | .040 | 100 | | | | | an sp 05A 1:10 dilution | .002 | .023 | .024 | 96 | |
| oil and grease | 2-14-86 | 197 | 200 | 99 | - | | | | - | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |

an sp = analytical spike
dig sp = digestion or matrix spike
idl = instrument detection limit

an dup = analytical duplicate
dig dup = digestion duplicate

* indicates value is less than
5x instrument detection limit
NC = not calculable

UNITS ug/lal

PLANT 4 86-02-067

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS | |
|-------------------|---------------|-------------|------------|-----|--------------------|-------|------|-----|----------------|--------|-------|-------|--------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | | %R |
| As | 2-15-86 | .029 | .027 | 107 | — | | | | an sp 0.3 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .042 | .040 | 105 | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Hg | 2-24-86 | .0048 | .0050 | 96 | — | | | | dq sp 0.4 E | <.0002 | .0020 | .0020 | 100 | prep bl <.0002 |
| | 2-20-86 | .0048 | .0050 | 96 | | | | | | | | | | prep bl <.0002 |
| | idl = .0002 | .0044 | .0040 | 110 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| 5 Pb 4119 | 2-17-86 | .045 | .043 | 105 | an dup 0.4 E | .037 | .038 | 2.7 | an sp 0.3 E | .020 | .035 | .024 | 63 | prep bl .004 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Sc | 2-17-86 | .042 | .040 | 105 | an dup 0.1 E | .007 | .007 | 0 | an sp 0.4 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .040 | .040 | | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| oil and Grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| | | | | | | | | | | | | | | |

idl = instrument detection limit
 an sp = analytical spike
 dq sp = digestion or matrix spike
 an dup = digestion duplicate
 an dup = analytical duplicate
 * indicates value is less than 5x instrument detection limit
 N.C. = not calculable

UNITS µg/mol

PLANT 4 86-02-079 samples 01-04 25,06,07-076,HC

| ELEMENT | ANALYSIS DATE | QC DATA | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS | |
|--------------|---------------|-------------|------------|--------------------|----------------|--------|--------|----------------|----------------------------|--------|-------|-------|--------|------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | %R | | |
| As | 2-21-86 | .042 | .040 | 105 | an.dup 01A | .011 | .010 | 9.5 | an.sp. 01A | .011 | .038 | .024 | 113 | prepbl <.002 |
| | idl=.002 | .042 | .040 | 105 | dig dup 01A | .011 | .011 | 0 | dig dup 02A | .007 | .026 | .020 | 95 | cal bl <.002 |
| | | .042 | .040 | 105 | | | | | | | | | | <.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup 01A | <.0002 | <.0002 | NC | dig sp 04A | <.0002 | .0021 | .0020 | 105 | prepbl <.0002 |
| | idl=.0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-21-86 | .042 | .043 | 98 | dig dup 01A | .048 | .047 | 2.1 | dig sp 02A | <.0002 | .109 | .020 | 45 | prepbl <.002 |
| | idl=.002 | .043 | .043 | 100 | | | | | an.sp 04A | <.0002 | .011 | .024 | 46 | cal bl <.002 |
| | | | | | | | | | an.sp 04A | <.0002 | .027 | .024 | 113 | cal bl <.002 |
| Se | 2-21-86 | .041 | .040 | 103 | dig dup 01A | <.0002 | <.0002 | NC | dig sp 02A | <.0002 | <.002 | .010 | 0 | prepbl <.002 |
| | idl=.002 | .043 | .040 | 108 | | | | | an.sp 04A | <.002 | .016 | .024 | 67 | cal bl <.002 |
| | | | | | | | | | an.sp 04A 1:10 dilution | <.002 | .024 | .024 | 100 | |
| Oil & Grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | idl= 1 | | | | | | | | | | | | | |

an dup = analytical duplicate dig dup = pre-digest duplicate idl = instrument detection limit NC = NOT CALCULABLE
 an sp = analytical spike dig sp = pre-digest spike * = value is less than 5 x idl

PLANT 4 86-02-087 samples 04 05 (metals) 01,02,03 (HCl) UNITS $\mu\text{g/g}$ (metal)

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|------|------|-----|-----------------------|--------|-------|-------|-----|--|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-24-86 | .036 | .040 | 90 | andup 04A | .038 | .038 | 0 | an sp 05A | <.002 | .024 | .024 | 100 | prep bl <.002 001 bl <.008 001 bl <.002 |
| | idl=.002 | .036 | .040 | 90 | | | | | | | | | | |
| | | .037 | .040 | 93 | - | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | dig sp 05A | <.0002 | .0019 | .0020 | 95 | prep bl <.0002 |
| | idl=.0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-21-86 | .042 | .043 | 98 | - | | | | an sp 05A | <.002 | .017 | .024 | 71 | prep bl <.002* |
| | idl=.002 | .043 | .043 | 100 | | | | | an sp 05A 1:10 dil | <.002 | .024 | .024 | 100 | 001 bl <.002 |
| | | | | | | | | | | | | | | |
| Se | 2-21-86 | .041 | .040 | 103 | | | | | an sp 04A | <.002 | .015 | .024 | 63 | prep bl <.002 |
| | idl=.002 | .043 | .040 | 108 | | | | | an sp 04A 1:10 dil | <.002 | .023 | .024 | 96 | 001 bl <.002 |
| | | | | | | | | | | | | | | |
| oil and grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | idl=1 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an dup=analytical duplicate an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike
idl = instrument detection limit *value is less than five times the instrument detection limit NC=not calculable

* detection limits are given on ³⁻¹³ furnace / Hg / OAG GA/QC summary sheet

AD-A190 445

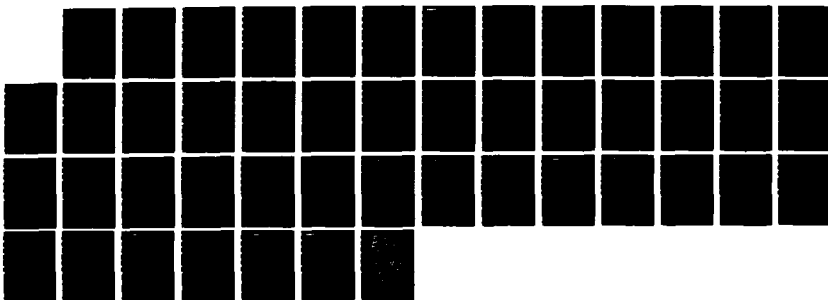
INSTALLATION RESTORATION PROGRAM PHASE 2
CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP
AUSTIN TX DEC 87 F33615-83-D-4881

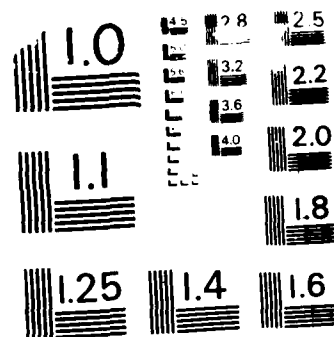
6/6

UNCLASSIFIED

F/G 24/7

ML





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

ICP QA/QC DATA

For work orders

8601240
8602031
8602041
8602060
8602067
8602079
8602087

Form II

Q. C. Report No. 2

INITIAL AND CONTINUING CALIBRATION VERIFICATION³

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

SOW NO. _____

UNITS ug/ml

| Compound Metals: | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|---------------------|-----------------------------|-------|-----|-------------------------------------|-------|-----|-------|-----|---------------------|
| | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | 100 | 101 | 101 | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | 100 | 104 | 104 | 1.00 | 1.05 | 105 | 1.04 | 104 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | 100 | 101 | 101 | 1.00 | 1.02 | 102 | 1.02 | 102 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | 100 | 100 | 100 | 1.00 | 1.02 | 102 | 1.00 | 100 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____ ² Continuing Calibration Source _____

³ Control Limits: Mercury and Tin. 80-120; All Other Compounds 90-110

⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form II

Q. C. Report No. 3

INITIAL AND CONTINUING CALIBRATION VERIFICATION³

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

SOW NO. _____

UNITS µg/ml

| Compound | | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|----------|-----------|-----------------------------|-------|----|-------------------------------------|-------|-----|-------|-----|---------------------|
| Metals: | | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| 1. | Aluminum | | | | | | | | | |
| 2. | Antimony | | | | | | | | | |
| 3. | Arsenic | | | | | | | | | |
| 4. | Barium | | | | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. | Beryllium | | | | | | | | | |
| 6. | Cadmium | | | | 1.00 | 1.04 | 104 | 1.03 | 103 | |
| 7. | Calcium | | | | | | | | | |
| 8. | Chromium | | | | 1.00 | 1.00 | 100 | 1.01 | 101 | |
| 9. | Cobalt | | | | | | | | | |
| 10. | Copper | | | | | | | | | |
| 11. | Iron | | | | | | | | | |
| 12. | Lead | | | | | | | | | |
| 13. | Magnesium | | | | | | | | | |
| 14. | Manganese | | | | | | | | | |
| 15. | Mercury | | | | | | | | | |
| 16. | Nickel | | | | | | | | | |
| 17. | Potassium | | | | | | | | | |
| 18. | Selenium | | | | | | | | | |
| 19. | Silver | | | | 1.00 | 1.01 | 101 | 1.02 | 102 | |
| 20. | Sodium | | | | | | | | | |
| 21. | Thallium | | | | | | | | | |
| 22. | Tin | | | | | | | | | |
| 23. | Vanadium | | | | | | | | | |
| 24. | Zinc | | | | | | | | | |
| Other: | | | | | | | | | | |
| Cyanide | | | | | | | | | | |

¹ Initial Calibration Source _____ ² Continuing Calibration Source _____

³ Control Limits: Mercury and Tin. 80-120; All Other Compounds 90-110

⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

8601240
8602031
8602041
8602060
8602067
8602079
8602087

Form III

Q. C. Report No. 2

BLANKS

LAB NAME Radium

CASE NO. PLANT 4

DATE 2-4-86

UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|------------------------|------------------------|-------|-------|-------|-------------------|---|
| | Blank Value | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | 2.001 | 2.001 | 2.001 | 2.001 | 2.001 | | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | 2.002 | 2.002 | 2.002 | .002* | .002* | | |
| 7. Calcium | | | | | | | |
| 8. Chromium | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | .006* | .018 | .010 | .009* | .014 | | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x idl

8602079
8602087

Form III

Q. C. Report No. 2

BLANKS

LAB NAME Radian

CASE NO. (2-1886) PLANT 4

DATE 3-4-86

UNITS µg/ml

Matrix water

| Preparation Compound | Initial Calibration Blank Value | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|---------------------------------------|------------------------|---|---|---|-------------------|---|
| | | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | | | | | | .005* | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | | | | | | <.002 | |
| 7. Calcium | | | | | | | |
| 8. Chromium | | | | | | <.005 | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | | | | | | <.002 | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5xidl

Form V

Q. C. Report No. 8SPIKE SAMPLE RECOVERY
predigestLAB NAME RadiumCASE NO. PLANT 4DATE 3-4-86

EPA Sample No.

Lab Sample ID No. 8602079-03Units ug/mlMatrix waterpredigest

| Compound | Control Limit %R | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | %R ¹ |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | " | | | | |
| 3. Arsenic | " | | | | |
| 4. Barium | " | 1.84 | .068 | 2.00 | 89 |
| 5. Beryllium | " | | | | |
| 6. Cadmium | " | .036 | 1.002 | .050 | 72 |
| 7. Calcium | " | | | | |
| 8. Chromium | " | .17 | .006* | .20 | 82 |
| 9. Cobalt | " | | | | |
| 10. Copper | " | | | | |
| 11. Iron | " | | | | |
| 12. Lead | " | | | | |
| 13. Magnesium | " | | | | |
| 14. Manganese | " | | | | |
| 15. Mercury | " | | | | |
| 16. Nickel | " | | | | |
| 17. Potassium | " | | | | |
| 18. Selenium | " | | | | |
| 19. Silver | " | .20 | 1.002 | .25 | 80 |
| 20. Sodium | " | | | | |
| 21. Thallium | " | | | | |
| 22. Tin | " | | | | |
| 23. Vanadium | " | | | | |
| 24. Zinc | " | | | | |
| Other: | | | | | |
| | | | | | |
| Cyanide | " | | | | |

¹ %R = [(SSR - SR)/SA] x 100

"R"- out of control

Comments: * value is less than 5x idl

RADIAN
CORPORATION

AUSTIN

EPA 601 860159, 860160, 860162, 860163
EPA 602 860159, 860160, 860162, 860163
OIL & GREASE 860159, 860160

METALS 860162, 860163

FIELD BLANKS - EPA 601
EPA 602

CHAIN OF CUSTODY RECORD
HYDROCARBON FUEL 860161, 860160, 860159

Field Sample No. _____

Company Sampled/Address _____

Sample Point Description _____

General Dynamics - Fort Worth, Plant 4
Ground Water

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name N. Robinson, A. Morrill Date/Time Sampled 2-13-86

Amount of Sample Collected FIVE MASON JARS, TWO 500 ml plastic, EIGHTEEN 40 ml glass

Sample Description Ground Water

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Skin irritant

☐ Flammable (FP < 40°C)

☐ Pyrophoric

☐ Lachrymator

☐ Shock sensitive

☐ Acidic

☐ Biological

☒ Carcinogenic - suspect

☐ Caustic

☐ Peroxide

☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name Radian Corp

Received By _____ Date Received _____ Time _____

Transported By Arthur Morrill Lab Sample No. _____

Comments _____

Inclusive Dates of Possession 2-13-86

Organization Name RAS

Received By Art Morrill Date Received 2-14-86 Time 11:12

Transported By Art Morrill Lab Sample No. 3003247

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

PLANT 4 86-01-240 samples 01-09
 FOR W.O. 86-01-240 86-02-031 86-02-041
 HPT, OIL AND GREASE, AC 4414C DATA 86-01-240 86-02-037
 UNITS ug/ml

| ELEMENT | ANALYSIS DATE | QC DATA | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS | |
|---------|---------------|-------------|------------|--------------------|-----------------|--------|-----|-----------------|-------|-------|-------|--------|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | DUPL | RPD | SAMP# | SR | SSR | SA | | %R |
| As | 2/8/86 | .041 | .040 | 103 | an dup 01 A | <.005 | N/C | an sp 01 A | <.005 | .024 | .024 | 100 | prep bl <.005 |
| | idl=.005 | .041 | .040 | 103 | | | | | | | | | cal bl <.005 |
| | | .040 | .040 | 100 | | | | | | | | | |
| Hg | 2/3/86 | .0054 | .0050 | 108 | dig dup 09 A | <.002* | N/C | dig sp 09 A | <.002 | .0028 | .0020 | 140 | prep bl ,0004* |
| | idl=.0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |
| Pb | 2-11/86 | .042 | .045 | 93 | an dup 09 A | <.002 | N/C | an sp 09 A | <.002 | .019 | .024 | 79 | prep bl ,002- |
| | idl=.002 | .046 | .045 | 102 | | | | | | | | | cal bl <.002- |
| | | | | | | | | | | | | | |
| Sc | 2/19/86 | .044 | .050 | 88 | an dup 05 A | <.003 | N/C | an sp 05 A | <.003 | .018 | .024 | 75 | prep bl <.003 |
| | idl=.003 | .044 | .050 | 88 | | | | an sp 05 110 | <.003 | .022 | .024 | 92 | cal bl <.003 |
| | | | | | | | | dilution | | | | | |
| Hg | 2/8/86 | .0054 | .0050 | 108 | dig dup 03 A | <.002 | N/C | dig sp 04 A | <.002 | .0024 | .0020 | 120 | <.0002 prep bl |
| | idl=.0002 | .0040 | .0040 | 100 | | | | | | | | | |
| | | | | | | | | | | | | | |

an dup = analytical duplicate an sp = analytical spike * indicates value is less than 5X instrument
 dig dup = digestion duplicate dig sp = digestion spike or detection limit
 i.d.l. = instrument detection limit matrix NC = not calculable

UNITS ug/gal

PLANT 4 86-02-031 samples (01, 03, 03, 06) - 0110 Grease 02, 03 - METALS

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|----------------|-------|-------|-------|----|-------------------------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP1 | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-19-86 | .039 | .040 | 98 | on dup | .02 G | <.005 | NC | an. sp | .005 | .023 | .024 | 96 | prep bl <.005 cal bl <.005 |
| | idl = .005 | .040 | .040 | 100 | | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | — | | | | dig sp | .0003 | .0019 | .0020 | 95 | prep bl <.0002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | .03 G | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | on dup | .03 G | .030 | 9.4 | an. sp | .033 | .053 | .024 | 83 | prep bl <.002 |
| | idl = .002 | .045 | .045 | 100 | | | | | | | | | | |
| Cd | 2-17-86 | .042 | .040 | 105 | — | | | | an. sp | .003 | .021 | .024 | 75 | prep bl <.002 cal bl <.002 |
| | idl = .002 | .040 | .040 | 100 | | | | | .02 G | | | | | |
| oil and Grease | 2-14-86 | 197 | 200 | 99 | — | | | | — | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| HC | 2-26-86 | 430 | 415 | 104 | | | | | | | | | | |
| | idl = 1 | 208 | 245 | 118 | | | | | | | | | | |

on. sp = analytical spike
dig sp = pigment or matrix spike
idl = instrument detection limit

on dup = analytical duplicate
dig dup = digestion duplicate

* indicates value is less than 5x instrument detection limit

NC = not calculable

UNITS ug/lal

PLANT 4 86-02-041 samples 01-06

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|--------|--------|-----|--------------------------------|--------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP" | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-19-86 | .039 | .040 | 98 | an dup 01 E | <.005 | <.005 | NC | an sp 01 E | <.005 | .022 | .024 | 92 | prep bl <.005 |
| | idl = .005 | .037 | .040 | 93 | | | | | | | | | | col bl <.005 |
| | | .035 | .040 | 88 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup 06 E | <.0002 | *.0002 | NC | dig sp 05 E | <.0002 | .0022 | .0020 | 110 | prep bl <.0002 |
| | idl = .0002 | .0044 | .0040 | 110 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Pb | 2-17-86 | .044 | .045 | 98 | an dup 01 E | <.002 | <.002 | NC | an sp 01 E 1:10 dilution | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .045 | .045 | 100 | | | | | | | | | | |
| | | .048 | .045 | 107 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Sc | 2-17-86 | .042 | .040 | 105 | - | | | | an sp 03 E | *.003 | .021 | .024 | 75 | prep bl <.002 |
| | idl = .002 | .039 | .040 | 98 | | | | | | | | | | col bl <.002 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| oil and grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| HC - idl = 1 | 2-14-86 | | | | an dup 03 | <1 | <1 | NC | | | | | | |

* indicates value is less than 5x instrument detection limit
NC = not calculable

idl = instrument det limit

an dup = analytical duplicate
dig dup = digestion duplicate

an sp = analytical spike
dig sp = digestion spike or matrix spike

UNITS ug/ml

PLANT 4 86-02-060 samples 01-05

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|-------------------|---------------|-------------|------------|-----|--------------------|-------|-------|-----|----------------|--------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-15-86 | .029 | .027 | 107 | dig dup 01C | .003* | .003* | 40 | dig sp 02C | .006* | .023 | .020 | 85 | prep bl ≤.002 |
| | idl = .002 | .042 | .040 | 105 | an. dup 03C | .006* | .003* | 67 | an sp 05A | ≤.002 | .024 | .024 | 100 | col bl ≤.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | 05A | ≤.0002 | .0020 | .0020 | 100 | prep bl ≤.0002 |
| | idl = .0002 | .0042 | .0040 | 105 | | | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | dig dup 01C | .034 | .031 | 9.1 | dig sp 02C | .27 | .29 | .020 | 100 | prep bl ≤.004 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | | col bl ≤.002 |
| Se | 2-17-86 | .042 | .040 | 105 | dig dup 01C | .003* | .002* | 40 | dig sp 02C | ≤.002 | .005 | .010 | 50 | prep bl ≤.002 |
| | idl = .002 | .040 | .040 | 100 | | | | | an sp 05A | ≤.002 | .023 | .024 | 96 | col bl ≤.002 |
| oil and grease | 2-14-86 | 197 | 200 | 99 | - | | | | - | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | 1:10 dilution | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an sp = analytical spike
dig sp = digestion or matrix spike
idl = instrument detection limit

an dup = analytical duplicate
dig dup = digestion duplicate

* indicates value is less than
5x instrument detection limit
NC = not calculable

UNITS ug/lal

PLANT 4 86-02-067

| ELEMENT | ANALYSIS DATE | QC DATA | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | BLANKS | | |
|----------------|---------------|-------------|------------|--------------------|-----------------|------|------|----------------|----------------|--------|-------|--------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP 1 | SAMP | DUPL | RPD | SAMP# | SR | SSR | | SA | %R |
| As | 2-15-86 | .029 | .027 | 107 | — | | | | an sp 0.3 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .042 | .040 | 105 | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Hg | 2-24-86 | .0048 | .0050 | 96 | — | | | | dq sp 0.4 E | <.0002 | .0020 | .0020 | 100 | prep bl <.0002 |
| | 2-20-86 | .0048 | .0050 | 96 | | | | | | | | | | prep bl <.0002 |
| | idl = .0002 | .0044 | .0040 | 110 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-17-86 | .045 | .043 | 105 | an dup 0.4 E | .037 | .038 | 2.7 | an sp 0.3 E | .020 | .035 | .024 | 63 | prep bl .004 |
| | idl = .002 | .049 | .043 | 114 | | | | | | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| Se | 2-17-86 | .042 | .040 | 105 | an dup 0.1 E | .007 | .007 | 0 | an sp 0.4 E | <.002 | .021 | .024 | 88 | prep bl <.002 |
| | idl = .002 | .040 | .040 | | | | | | 1:10 dilution | | | | | cal bl <.002 |
| | | | | | | | | | | | | | | |
| oil and Grease | 2-14-86 | 197 | 200 | 99 | | | | | | | | | | |
| | idl = 1 | 197 | 200 | 99 | | | | | | | | | | |
| | | | | | | | | | | | | | | |

idl = instrument
detection
limit

an sp = analytical spike

dq sp = digestion or matrix spike

dig

an dup

= digestion duplicate
an dup = analytical duplicate* indicates value is less
than 5 x instrument detection
limit
N.C. = not calculable

UNITS µg/mlPLANT 4 86-03-079 samples 01-04 250607-046, HC

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|--------------|---------------|-------------|------------|-----|--------------------|------|--------|-----|-------------------|--------|-------|-------|-----|-------------------|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | 8R | |
| As | 2-21-86 | .043 | .040 | 105 | an dup | 01A | .011 | 9.5 | an sp | .011 | .038 | .024 | 113 | prep bl ≤.002 |
| | idl = .002 | .043 | .040 | 105 | dig dup | 01A | .011 | 0 | dig dup | .007 | .026 | .020 | 95 | cal bl ≤.002 |
| | | .042 | .040 | 105 | | | | | | | | | | ≤.002 |
| | | .042 | .040 | 105 | | | | | | | | | | ≤.002 |
| Hg | 2-20-86 | .0048 | .0050 | 96 | dig dup | 01A | ≤.0002 | NC | dig sp | ≤.0002 | .0031 | .0020 | 105 | prep bl ≤.0002 |
| | idl = .0002 | .0043 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| | | .042 | .043 | 98 | dig dup | 01A | .048 | 2.1 | dig sp | ≤.0002 | .009 | .020 | 45 | prep bl ≤.002 |
| Pb | 2-21-86 | .042 | .043 | 98 | dig dup | 01A | .048 | 2.1 | an sp | ≤.0002 | .011 | .024 | 46 | cal bl ≤.002 |
| | idl = .002 | .043 | .043 | 100 | | | | | an sp | ≤.0002 | .027 | .024 | 113 | cal bl ≤.002 |
| | | | | | | | | | 04A | ≤.0002 | | | | |
| | | | | | | | | | 1:10 dilution | | | | | |
| Se | 2-21-86 | .041 | .040 | 103 | dig dup | 01A | ≤.0002 | NC | dig sp | ≤.0002 | ≤.003 | .010 | 0 | prep bl ≤.002 |
| | idl = .002 | .043 | .040 | 108 | | | | | an sp | ≤.0002 | .016 | .024 | 67 | cal bl ≤.002 |
| | | | | | | | | | an sp | ≤.0002 | .024 | .024 | 100 | |
| | | | | | | | | | 04A 1:10 dilution | ≤.0002 | | | | |
| oil & Grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | idl = 1 | | | | | | | | | | | | | |

an dup = analytical duplicate dig dup = pre-digest duplicate idl = instrument detection limit NC = NOT CALCULABLE
 an sp = analytical spike dig sp = pre-digest spike * = value is less than 5 x idl

PLANT 4 86-02-087 people 04 05 (metal) 01,02,03(MC) 01,02,03(MC) UNITS mg/ml

| ELEMENT | ANALYSIS DATE | QC DATA | | | DUPLICATE ANALYSIS | | | | SPIKE RECOVERY | | | | | BLANKS |
|----------------|---------------|-------------|------------|-----|--------------------|------|------|-----|----------------------------|-------|-------|-------|-----|--|
| | | FOUND VALUE | TRUE VALUE | %R | SAMP# | SAMP | DUPL | RPD | SAMP# | SR | SSR | SA | %R | |
| As | 2-24-86 | .036 | .040 | 90 | an dup 04A | .038 | .038 | 0 | an sp 05A | <.002 | .024 | .024 | 100 | prep bl 1.002 cal bl 1.008 cal bl 1.002 |
| | idl=1.002 | .036 | .040 | 90 | | | | | | | | | | |
| | | .037 | .040 | 93 | - | | | | | | | | | |
| Hg | 2-20-86 | .0048 | .0050 | 96 | - | | | | dig sp 05A | <.002 | .0019 | .0020 | 95 | prep bl 1.002 |
| | idl=1.002 | .0042 | .0040 | 105 | | | | | | | | | | |
| | | .0044 | .0040 | 110 | | | | | | | | | | |
| Pb | 2-21-86 | .042 | .043 | 98 | - | | | | an sp 05A | <.002 | .017 | .024 | 71 | prep bl 1.002* |
| | idl=1.002 | .043 | .043 | 100 | | | | | an sp 05A 1:10 dil | <.002 | .024 | .024 | 100 | cal bl 1.002 |
| Se | 2-21-86 | .041 | .040 | 103 | | | | | an sp 04A | <.002 | .015 | .024 | 63 | prep bl 1.002 |
| | idl=1.002 | .043 | .040 | 108 | | | | | an sp 04A 1:10 dilution | <.002 | .023 | .024 | 96 | cal bl 1.002 |
| oil and grease | 3-14-86 | 191 | 200 | 96 | | | | | | | | | | |
| | idl=1 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

an dup=analytical duplicate an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike
idl = instrument detection limit *=value is less than five times the instrument detection limit NC=not calculable

For work 860124
 orders 860203
 860204
 860206
 860206
 860207
 860208

Form VII

Q.C. Report No. 2

INSTRUMENT DETECTION LIMITS AND

LABORATORY CONTROL SAMPLE

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

LCS UNITS ug/L mg/kg

ug/ml (Circle One)

| Compound | Required Detection Limits (CRDL)-ug/l | Instrument Detection Limits (IDL)-ug/l | | Lab Control Sample | | |
|---------------|--|---|----------|--------------------|-------|----|
| | | ICP/AA | Furnace* | True | Found | ZR |
| Metals: | | | | | | |
| 1. Aluminum | 200 | | | | | |
| 2. Antimony | 60 | | | | | |
| 3. Arsenic | 10 | | | | | |
| 4. Barium | 200 | <.001 | | | | |
| 5. Beryllium | 5 | | | | | |
| 6. Cadmium | 5 | 2.002 | | | | |
| 7. Calcium | 5000 | | | | | |
| 8. Chromium | 10 | 2.005 | | | | |
| 9. Cobalt | 50 | | | | | |
| 10. Copper | 25 | | | | | |
| 11. Iron | 100 | | | | | |
| 12. Lead | 5 | | | | | |
| 13. Magnesium | 5000 | | | | | |
| 14. Manganese | 15 | | | | | |
| 15. Mercury | 0.2 | | | | | |
| 16. Nickel | 40 | | | | | |
| 17. Potassium | 5000 | | | | | |
| 18. Selenium | 5 | | | | | |
| 19. Silver | 10 | <.002 | | | | |
| 20. Sodium | 5000 | | | | | |
| 21. Thallium | 10 | | | | | |
| 22. Tin | 40 | | | | | |
| 23. Vanadium | 50 | | | | | |
| 24. Zinc | 20 | | | | | |
| Other: | | | 5 436 | | | |
| Cyanide | 10 | | | | | |

* detection limits are given on ⁸⁻¹³ furnace /Hg/046 QA/QC SUMMARY SHEET.

ICP QA / PC DATA

For work
orders
 8601240
 8602031
 8602041
 8602060
 8602067
 8602079
 8602087

Form II

Q. C. Report No. 2INITIAL AND CONTINUING CALIBRATION VERIFICATION³LAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

SOW NO. _____

UNITS ug/ml

| Compound | | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|----------|-----------|-----------------------------|-------|-----|-------------------------------------|-------|-----|-------|-----|---------------------|
| Metals: | | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| 1. | Aluminum | | | | | | | | | |
| 2. | Antimony | | | | | | | | | |
| 3. | Arsenic | | | | | | | | | |
| 4. | Barium | 100 | 101 | 101 | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. | Beryllium | | | | | | | | | |
| 6. | Cadmium | 100 | 104 | 104 | 1.00 | 1.05 | 105 | 1.04 | 104 | |
| 7. | Calcium | | | | | | | | | |
| 8. | Chromium | 100 | 101 | 101 | 1.00 | 1.02 | 102 | 1.02 | 102 | |
| 9. | Cobalt | | | | | | | | | |
| 10. | Copper | | | | | | | | | |
| 11. | Iron | | | | | | | | | |
| 12. | Lead | | | | | | | | | |
| 13. | Magnesium | | | | | | | | | |
| 14. | Manganese | | | | | | | | | |
| 15. | Mercury | | | | | | | | | |
| 16. | Nickel | | | | | | | | | |
| 17. | Potassium | | | | | | | | | |
| 18. | Selenium | | | | | | | | | |
| 19. | Silver | 100 | 100 | 100 | 1.00 | 1.02 | 102 | 1.00 | 100 | |
| 20. | Sodium | | | | | | | | | |
| 21. | Thallium | | | | | | | | | |
| 22. | Tin | | | | | | | | | |
| 23. | Vanadium | | | | | | | | | |
| 24. | Zinc | | | | | | | | | |
| Other: | | | | | | | | | | |
| Cyanide | | | | | | | | | | |

¹ Initial Calibration Source _____ ² Continuing Calibration Source _____³ Control Limits: Mercury and Tin. 80-120; All Other Compounds 90-110⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form II

Q. C. Report No. 3

INITIAL AND CONTINUING CALIBRATION VERIFICATION³

LAB NAME Radian

CASE NO. PLANT 4

DATE 3-4-86

SOW NO. _____

UNITS µg/ml

| Compound | Initial Calib. ¹ | | | Continuing Calibration ² | | | | | Method ⁴ |
|---------------|-----------------------------|-------|----|-------------------------------------|-------|-----|-------|-----|---------------------|
| | True Value | Found | ZR | True Value | Found | ZR | Found | ZR | |
| Metals: | | | | | | | | | |
| 1. Aluminum | | | | | | | | | |
| 2. Antimony | | | | | | | | | |
| 3. Arsenic | | | | | | | | | |
| 4. Barium | | | | 1.00 | 1.01 | 101 | 1.01 | 101 | |
| 5. Beryllium | | | | | | | | | |
| 6. Cadmium | | | | 1.00 | 1.04 | 104 | 1.03 | 103 | |
| 7. Calcium | | | | | | | | | |
| 8. Chromium | | | | 1.00 | 1.00 | 100 | 1.01 | 101 | |
| 9. Cobalt | | | | | | | | | |
| 10. Copper | | | | | | | | | |
| 11. Iron | | | | | | | | | |
| 12. Lead | | | | | | | | | |
| 13. Magnesium | | | | | | | | | |
| 14. Manganese | | | | | | | | | |
| 15. Mercury | | | | | | | | | |
| 16. Nickel | | | | | | | | | |
| 17. Potassium | | | | | | | | | |
| 18. Selenium | | | | | | | | | |
| 19. Silver | | | | 1.00 | 1.01 | 101 | 1.02 | 102 | |
| 20. Sodium | | | | | | | | | |
| 21. Thallium | | | | | | | | | |
| 22. Tin | | | | | | | | | |
| 23. Vanadium | | | | | | | | | |
| 24. Zinc | | | | | | | | | |
| Other: | | | | | | | | | |
| Cyanide | | | | | | | | | |

¹ Initial Calibration Source _____ ² Continuing Calibration Source _____

³ Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

⁴ Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

86C1240
8602031
8602041
8602060
8602067
8602079
8602087

Form III

Q. C. Report No. 2

BLANKS

LAB NAME Radium

CASE NO. PLANT 4

DATE 2-4-86

UNITS ug/ml

Matrix water

| Preparation Compound | Initial Calibration Blank Value | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|---------------------------------------|------------------------|-------|-------|-------|-------------------|---|
| | | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | 2.001 | 2.001 | 2.001 | 2.001 | 2.001 | | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | 2.002 | 2.002 | 2.002 | .002* | .002* | | |
| 7. Calcium | | | | | | | |
| 8. Chromium | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | .006* | .018 | .010 | .009* | .014 | | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x idl

8602079
8602087

Form III

Q. C. Report No. 2

BLANKS

LAB NAME Radian

CASE NO. (2-1886) PLANT 4

DATE 3-4-86

UNITS µg/ml

Matrix water

| Preparation Compound | Initial Calibration Blank Value | Continuing Calibration | | | | Preparation Blank | |
|-------------------------|---------------------------------------|------------------------|---|---|---|-------------------|---|
| | | Blank Value | | | | 1 | 2 |
| | | 1 | 2 | 3 | 4 | | |
| Metals: | | | | | | | |
| 1. Aluminum | | | | | | | |
| 2. Antimony | | | | | | | |
| 3. Arsenic | | | | | | | |
| 4. Barium | | | | | | .005* | |
| 5. Beryllium | | | | | | | |
| 6. Cadmium | | | | | | <.002 | |
| 7. Calcium | | | | | | | |
| 8. Chromium | | | | | | <.005 | |
| 9. Cobalt | | | | | | | |
| 10. Copper | | | | | | | |
| 11. Iron | | | | | | | |
| 12. Lead | | | | | | | |
| 13. Magnesium | | | | | | | |
| 14. Manganese | | | | | | | |
| 15. Mercury | | | | | | | |
| 16. Nickel | | | | | | | |
| 17. Potassium | | | | | | | |
| 18. Selenium | | | | | | | |
| 19. Silver | | | | | | <.002 | |
| 20. Sodium | | | | | | | |
| 21. Thallium | | | | | | | |
| 22. Tin | | | | | | | |
| 23. Vanadium | | | | | | | |
| 24. Zinc | | | | | | | |
| Other: | | | | | | | |
| Cyanide | | | | | | | |

*value is less than 5x cd1

Form VI

Q. C. Report No. 2DUPLICATES
PRE-DIGESTLAB NAME RadianDATE 3-4-86CASE NO. PLANT 4

EPA Sample No.

Lab Sample ID No. 865208704AUnits ug/mlMatrix water

digestion

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD ² |
|---------------|----------------------------|-----------|--------------|------------------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | .11 | .11 | 0 |
| 5. Beryllium | | | | |
| 6. Cadmium | | <.002 | <.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | .016* | .016* | 0 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | .004* | .005* | 22 |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

*Out of Control

To be added at a later date.

$$^2 \text{ RPD} = \left[\frac{1}{2} (S - D) / ((S + D)/2) \right] \times 100$$

¹ - Non calculable RPD due to value(s) less than CRDL

*value is less than 5x idl

Form VI

Q. C. Report No. 2DUPLICATES
ANALYTICALLAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

EPA Sample No.

Lab Sample ID No. 8602087-04AUnits ug/mlMatrix water

analytical

| Compound | Control Limit ¹ | Sample(S) | Duplicate(D) | RPD ² |
|---------------|----------------------------|-----------|--------------|------------------|
| Metals: | | | | |
| 1. Aluminum | | | | |
| 2. Antimony | | | | |
| 3. Arsenic | | | | |
| 4. Barium | | .11 | .11 | 0 |
| 5. Beryllium | | | | |
| 6. Cadmium | | <.002 | <.002 | NC |
| 7. Calcium | | | | |
| 8. Chromium | | .016* | .016* | 0 |
| 9. Cobalt | | | | |
| 10. Copper | | | | |
| 11. Iron | | | | |
| 12. Lead | | | | |
| 13. Magnesium | | | | |
| 14. Manganese | | | | |
| 15. Mercury | | | | |
| 16. Nickel | | | | |
| 17. Potassium | | | | |
| 18. Selenium | | | | |
| 19. Silver | | .004* | <.002 | NC |
| 20. Sodium | | | | |
| 21. Thallium | | | | |
| 22. Tin | | | | |
| 23. Vanadium | | | | |
| 24. Zinc | | | | |
| Other: | | | | |
| Cyanide | | | | |

¹ Out-of-Control

To be added at a later date.

$$^2 \text{ RPD} = \left[\frac{|S - D|}{((S + D)/2)} \right] \times 100$$

¹ - Non calculable RPD due to value(s) less than CRDL

* value is less than 5 x idl

Form V

Q. C. Report No. 2

SPIKE SAMPLE RECOVERY

LAB NAME RadianCASE NO. PLANT 4DATE 3-4-86

EPA Sample No. _____

Lab Sample ID No. 86-03-087-05Units µg/mlMatrix water

| Compound | Control Limit ZR | Spiked Sample Result (SSR) | Sample Result (SR) | Spiked Added (SA) | ZR ¹ |
|---------------|---------------------|-------------------------------|-----------------------|----------------------|-----------------|
| Metals: | | | | | |
| 1. Aluminum | 75-125 | | | | |
| 2. Antimony | - | | | | |
| 3. Arsenic | - | | | | |
| 4. Barium | - | 1.06 | 0.087 | 1.00 | 97 |
| 5. Beryllium | - | | | | |
| 6. Cadmium | - | 0.94 | <0.02 | 1.00 | 94 |
| 7. Calcium | - | | | | |
| 8. Chromium | - | 0.96 | <0.05 | 1.00 | 96 |
| 9. Cobalt | - | | | | |
| 10. Copper | - | | | | |
| 11. Iron | - | | | | |
| 12. Lead | - | | | | |
| 13. Magnesium | - | | | | |
| 14. Manganese | - | | | | |
| 15. Mercury | - | | | | |
| 16. Nickel | - | | | | |
| 17. Potassium | - | | | | |
| 18. Selenium | - | | | | |
| 19. Silver | - | 0.98 | <0.02 | 1.00 | 98 |
| 20. Sodium | - | | | | |
| 21. Thallium | - | | | | |
| 22. Tin | - | | | | |
| 23. Vanadium | - | | | | |
| 24. Zinc | - | | | | |
| Other: | | | | | |
| Cyanide | | | | | |

¹ ZR = [(SSR - SR)/SA] x 100

"R" - out of control

Comments: _____

Organics QA/9C 8602-087

8602087-01, 02, 04, 06

Volatile Organics

DETECTION LIMITS

| METHOD 601 | | | METHOD DETECTION LIMIT ug/l |
|------------|--------------------------|------------------|--------------------------------------|
| | COMPOUND | -01-02 -04-06 | -05 |
| | Chloromethane | 0.08 | 0.8 |
| | Bromomethane | 1.18 | 11.8 |
| | Vinyl Chloride | 0.18 | 1.8 |
| | Chloroethane | 0.52 | 5.2 |
| | Methylene Chloride | 0.25 | 2.5 |
| | Trichlorofluoromethane | 0.10 | 1.0 |
| | 1,1-Dichloroethene | 0.13 | 1.3 |
| | 1,1-Dichloroethane | 0.07 | 0.7 |
| | Trans-1,2-Dichloroethene | 0.10 | 1.0 |
| | Chloroform | 0.05 | 0.5 |
| | 1,2-Dichloroethane | 0.03 | 0.3 |
| | 1,1,1-Trichloroethane | 0.03 | 0.3 |
| | Carbon Tetrachloride | 0.12 | 1.2 |
| | Bromodichloromethane | 0.10 | 1.0 |
| | 1,2-Dichloropropane | 0.04 | 0.4 |
| | Trichloroethene | 0.12 | 1.2 |
| | Dibromochloromethane | 0.09 | 0.9 |
| | 2-Chloroethylvinyl Ether | 0.13 | 1.3 |
| | Bromoform | 0.20 | 2.0 |
| | Tetrachloroethene | 0.03 | 0.3 |
| | Chlorobenzene | 0.25 | 2.5 |
| | 1,3-Dichlorobenzene | 0.32 | 3.2 |
| | 1,2-Dichlorobenzene | 0.15 | 1.5 |
| | 1,4-Dichlorobenzene | 0.24 | 2.4 |

8603087-01,003-04-06

DETECTION LIMITS

VOLATILE ORGANICS

METHOD 662

| COMPOUND | DETECTION LIMIT $\mu\text{g/L}$ | | | | | |
|---------------------|---------------------------------|--|--|--|--|--|
| | 01-02 -04-06 | | | | | |
| BENZENE | 0.2 | | | | | |
| TOLUENE | 0.2 | | | | | |
| ETHYL BENZENE | 0.2 | | | | | |
| CHLOROBENZENE | 0.2 | | | | | |
| 1,4-DICHLOROBENZENE | 0.3 | | | | | |
| 1,3-DICHLOROBENZENE | 0.4 | | | | | |
| 1,2-DICHLOROBENZENE | 0.4 | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

VOA RESULTS

| LAB # _____ | | SYSTEM NAME _____ | |
|---------------------------|----------------------|---------------------|----------------------|
| CLIENT NAME _____ | | DATE: _____ | |
| SAMPLE ID _____ | | ANALYST: _____ | |
| EPA METHOD 601 | | EPA METHOD 602 | |
| INSTRUMENT: _____ | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

[illegible]

VOA RESULTS

| LAB # <u>54570 BAWIL</u> | | | |
|---------------------------|--|-------------------------|----------------------------------|
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | DATE: <u>2/15/86</u> ANALYST: <u>CJ</u> INSTRUMENT: <u>Dumas</u> | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>NP</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | a,a,a,-Trifluorotoluene | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|-------------------------------|---|---------------------|----------------------------------|
| LAB # <u>1172227 12/11/12</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| ===== | | ===== | |
| EPA METHOD 601 | DATE: <u>2/15/12</u> ANALYST: <u>cy</u> INSTRUMENT: <u>Shimadzu</u> | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>ND</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | | |
| Trans-1,3-Dichloropropene | | | |
| Trichloroethene | | | |
| Dibromochloromethane | | | |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |
| | | | |

SURROGATE RECOVERIES:

601

Bromochloromethane _____

2-Bromo-1-Chloropropane _____

1,4-Dichlorobutane _____

602

a,a,a,-Trifluorotoluene _____

VOA RESULTS

| LAB # | | SYSTEM BUNK | |
|---------------------------|---|-------------------------|----------------------------------|
| CLIENT NAME | | | |
| SAMPLE ID | | | |
| EPA METHOD 601 | DATE: 2/14/76 ANALYST: JSC INSTRUMENT: Bundette | EPA METHOD 602 | DATE: ANALYST: INSTRUMENT: |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | No | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichlorethane | | 1,2-Dichlorobenzene | |
| 1,1-Dichlorethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichlorethane | | | |
| 1,1,1-Trichlorethane | | | |
| Carbon tetrachloride | | | |
| Bromodichlormethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichlorethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachlorethane | | | |
| Tetrachlorethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

VOA RESULTS

| | | | |
|---------------------------|----------------------|-----------------------------|----------------------|
| LAB # <u>1000000000</u> | | | |
| CLIENT NAME _____ | | | |
| SAMPLE ID _____ | | | |
| EPA METHOD 601 | | DATE: <u>8/14/76</u> | EPA METHOD 602 |
| ANALYST: <u>C</u> | | INSTRUMENT: <u>Burnette</u> | ANALYST: _____ |
| INSTRUMENT: _____ | | INSTRUMENT: _____ | |
| COMPOUND | CONCENTRATION (ug/L) | COMPOUND | CONCENTRATION (ug/L) |
| Chloromethane | <u>ND</u> | Benzene | |
| Bromomethane | | Toluene | |
| Vinyl Chloride | | Ethyl benzene | |
| Chloroethane | | Chlorobenzene | |
| Methylene chloride | | 1,4-Dichlorobenzene | |
| Trichlorofluoromethane | | 1,3-Dichlorobenzene | |
| 1,1-Dichloroethene | | 1,2-Dichlorobenzene | |
| 1,1-Dichloroethane | | P-Xylene | |
| Trans-1,2-Dichloroethene | | M-Xylene | |
| Chloroform | | O-Xylene | |
| 1,2-Dichloroethane | | | |
| 1,1,1-Trichloroethane | | | |
| Carbon tetrachloride | | | |
| Bromodichloromethane | | | |
| 1,2-Dichloropropane | | SURROGATE RECOVERIES: | |
| Trans-1,3-Dichloropropene | | 601 | |
| Trichloroethene | | Bromochloromethane | |
| Dibromochloromethane | | 2-Bromo-1-Chloropropane | |
| 1,1,2-Trichloroethane | | 1,4-Dichlorobutane | |
| cis-1,3-Dichloropropene | | 602 | |
| 2-Chloroethylvinyl ether | | a,a,a,-Trifluorotoluene | |
| Bromoform | | | |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethylene | | | |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | <u>ND</u> | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

RAS GC LAB

| | | | | | | | | |
|----------------|----------------------------|---------------------------|--------------------------|--------|--|---------------|--|--|
| DATE: 2/14/86 | | SPIKED VALUE (ug/L) | ANALYZED VALUE (ug/L) | | | Z RECOVERY | | |
| INSTRUMENT | | | D | | | D | | |
| ANALYST | | | C | | | C | | |
| TEST METHOD | COMPOUND | | | | | | | |
| EPA 601 | Chloromethane | 16.2 | | | | | | |
| | Chloroethane | 28.1 | | | | | | |
| | Methylene Chloride | 26.3 | | | | | | |
| | 1,1-Dichloroethylene | 45.0 | | | | | | |
| | Trans-1,2-Dichloroethylene | 12.5 | | | | | | |
| | Carbon Tetrachloride | 60.0 | | | | | | |
| | Dichlorobromomethane | 40.0 | | | | | | |
| | 1,1,2-Trichloroethane | 33.8 | | | | | | |
| EPA 602 | Benzene | 30.7 | 35.6 | | | 116 | | |
| | Toluene | 4.1 | 4.6 | | | 111 | | |
| | Ethylbenzene | 11.5 | 11.4 | | | 99 | | |
| | P-Xylene | 19.1 | 20.6 | | | 108 | | |
| | M-Xylene | 42.6 | 55.5 | | | 130 | | |
| | O-Xylene | 10.6 | 8.8 | | | 83 | | |
| EPA 608 | | (ug/g) | | (ug/g) | | | | |
| | Aroclor 1242 | 58.7 | | | | | | |
| | Aroclor 1260 | 56.8 | | | | | | |

5 452

DAILY QUALITY CONTROL

EPA QC WP 483 conc 2 + EPA QC WP 781 conc 3

2/15/86

| | CERTIFIED VALUE (mg/L) | G ANALYZED VALUE | G % REC |
|---------------------------|------------------------------|------------------------|------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 10.1 | 110 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 7.9 | 79 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 62.1 | 144 |
| 1,2-Dichloroethane | 27.6 | 23.7 | 86 |
| 1,1,1-Trichloroethane | 14.3 | 13.4 | 94 |
| Carbon tetrachloride | 20.0 | 16.4 | 82 |
| Bromodichloromethane | 7.9 | 8.5 | 107 |
| 1,2-Dichloropropane | 8.0 | 7.8 | 98 |
| Trichloroethene | 22.2 | 22.6 | 102 |
| Dibromochloromethane | 16.7 | 13.8 | 83 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 9.8 | 99 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.8 | 107 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

DAILY QUALITY CONTROL

EPA GC WP 483 conc 2 + EPA GC WP 781 conc 3

2/14/86

B / G

B / G

CERTIFIED
VALUE
(mg/L)

ANALYZED
VALUE

81%
B / G

| | | | |
|---------------------------|------|-------------|-----------|
| Chloromethane | | | |
| Bromomethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | 9.2 | 8.7 / 9.5 | 94 / 103 |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | 10.0 | 8.6 / 9.3 | 86 / 93 |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | 5.4 | | |
| Chloroform | 43.0 | 54.2 / 48.2 | 126 / 112 |
| 1,2-Dichloroethane | 27.6 | 23.0 / 37.5 | 83 / 136 |
| 1,1,1-Trichloroethane | 14.3 | 15.0 / 12.3 | 105 / 101 |
| Carbon tetrachloride | 20.0 | 19.5 / 20.7 | 97 / 104 |
| Bromodichloromethane | 7.9 | 8.3 / 9.2 | 106 / 116 |
| 1,2-Dichloropropane | 8.0 | 7.8 / 7.9 | 98 / 99 |
| Trichloroethene | 22.2 | 20.2 / 24.8 | 91 / 112 |
| Dibromochloromethane | 16.7 | 15.5 / 16.0 | 93 / 96 |
| 1,1,2-Trichloroethane | | | |
| cis-1,3-Dichloropropene | | | |
| 2-Chloroethylvinyl ether | | | |
| Bromoform | 9.9 | 9.8 / 10.3 | 99 / 104 |
| 1,1,2,2-Tetrachloroethane | 10.0 | | |
| Tetrachloroethylene | 6.2 | | |
| Chlorobenzene | 8.2 | 8.2 / 7.8 | 100 / 95 |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

SPIKE RECOVERY

| EPA METHOD 601 Volatile Organics | 86 02087-06A RANTY FIELD BURN | | | | 2/15/86 PP G | | | |
|-------------------------------------|-------------------------------------|----|------|-----|--------------------|----|----|----|
| COMPOUNDS | SSR | SR | SA | ZR | SSR | SR | SA | ZR |
| Chloromethane | | | | | | | | |
| Bromomethane | | | | | | | | |
| Vinyl chloride | | | | | | | | |
| Chloroethane | | | | | | | | |
| Methylene chloride | 9.0 | | 9.2 | 98 | | | | |
| Trichlorofluoromethane | | | | | | | | |
| 1,1-Dichloroethene | 7.7 | | 10.0 | 77 | | | | |
| 1,1-Dichloroethane | | | | | | | | |
| trans-1,2-Dichloroethene | 5.5 | | 5.4 | 102 | | | | |
| Chloroform | 65.5 | | 43.0 | 152 | | | | |
| 1,2-Dichloroethane | 25.5 | | 27.6 | 92 | | | | |
| 1,1,1-Trichloroethane | 15.6 | | 14.3 | 109 | | | | |
| Carbon Tetrachloride | 22.1 | | 20.0 | 110 | | | | |
| Bromodichloroemethane | 9.5 | | 7.9 | 120 | | | | |
| 1,2-Dichloropropane | 9.3 | | 8.0 | 117 | | | | |
| Trichloroethene | 26.3 | | 22.2 | 119 | | | | |
| Dibromochloromethane | 17.4 | | 16.7 | 104 | | | | |
| 1,1,2-Trichloroethane | | | | | | | | |
| cis-1,2-Dichloropropene | | | | | | | | |
| 2-Chlorethylvinyl ether | | | | | | | | |
| Bromoform | 11.0 | | 9.9 | 111 | | | | |
| 1,1,2,2-Tetrachlorethane | | | 12.0 | | | | | |
| Tetrachlorethylene | | | 6.2 | | | | | |
| Chlorobenzene | 11.1 | | 8.2 | 135 | | | | |
| 1,3-Dichlorobenzene | | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | | |

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

DUPLICATE ANALYSIS

860159

EPA METHOD 602

VOLATILE ORGANICS

SAMPLE # 8602087-01E

UNITS ug/l

| COMPOUND | RUN#1 | RUN#2 | RPD |
|---------------------|-------|-------|-----|
| Benzene | | | |
| Toluene | 1.79 | 1.76 | 1.7 |
| Ethyl benzene | | | |
| 1,4-Dichlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| O-Xylene | | | |
| M-Xylene | | | |
| P-Xylene | | | |
| Chlorobenzene | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD= Relative Percent Difference

DUPLICATE ANALYSIS

| EPA Method 601 Volatile Organics | | | | | | |
|-------------------------------------|-------|-------|------|-------|-------|-----|
| COMPOUND <i>ug/l</i> | RUN#1 | RUN#2 | RPD | RUN#1 | RUN#2 | RPD |
| Chloromethane | | | | | | |
| Bromomethane | | | | | | |
| Vinyl chloride | | | | | | |
| Chloroethane | | | | | | |
| Methylene chloride | | | | | | |
| Trichlorofluoromethane | | | | | | |
| 1,1-Dichloroethene | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| trans-1,2-Dichloroethene | | | | | | |
| Chloroform | | | | | | |
| 1,2-Dichloroethane | | | | | | |
| 1,1,1-Trichloroethane | | | | | | |
| Carbon Tetrachloride | | | | | | |
| Bromodichloroemethane | | | | | | |
| 1,2-Dichloropropane | | | | | | |
| Trichloroethene | 177 | 176 | 0.56 | | | |
| Dibromochloromethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| cis-1,2-Dichloropropene | | | | | | |
| 2-Chloroethylvinyl ether | | | | | | |
| Bromoform | | | | | | |
| 1,1,2,2-Tetrachlorethane | | | | | | |
| Tetrachlorethylene | | | | | | |
| Chlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2) / 2} \times 100$$

RPD = Relative Percent Difference

5 457

SURROGATE RECOVERIES

LAB #: 8602087-01C

SAMPLE ID: 860159

DATE: 2-14-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 96%

2-BROMO-1-CHLOROPROPANE: 107%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602087-02C

SAMPLE ID: 860100

DATE: 2-14-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 100%

2-BROMO-1-CHLOROPROPANE: 100%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8002087-C4B

SAMPLE ID: 800162

DATE: 2-14-86

INSTRUMENT: B

601/8010

BROMOCHLOROMETHANE: 114%

2-BROMO-1-CHLOROPROPANE: 110%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 8602087-05B

SAMPLE ID: 8601103

DATE: 2-15-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 91%, 88%

2-BROMO-1-CHLOROPROPANE: 122%, 108%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 80002087-CVA

SAMPLE ID: TRIP BLANK

DATE: 2-15-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 93%

2-BROMO-1-CHLOROPROPANE: 99%

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

SURROGATE RECOVERIES

LAB #: 81102087-01E

SAMPLE ID: 8110159

DATE: 2-14-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a, a, a-TRIFLUOROTOLUENE: 116%, 101%

SURROGATE RECOVERIES

LAB #: 86002087-03E

SAMPLE ID: 86001100

DATE: 2-14-80

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 110%

SURROGATE RECOVERIES

LAB #: 8602087-04D

SAMPLE ID: 860102

DATE: 2-14-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 97%

SURROGATE RECOVERIES

LAB #: 86002087-C5D

SAMPLE ID: 8600163

DATE: 2-14-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 107%

SURROGATE RECOVERIES

LAB #: 8002087-06B

SAMPLE ID: FIELD BLANK

DATE: 2-14-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 105%

Field Sample No. _____

Company Sampled/Address General Dynamics, Ft. Worth, Plant 4

Sample Point Description Groundwater

Stream Characteristics:

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name Wendy Johnson Date/Time Sampled 2-13-86

Amount of Sample Collected THREE 1000ml glass

Sample Description Groundwater

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below)

☐ Non-hazardous sample

☒ Toxic

☐ Pyrophoric

☐ Acidic

☐ Caustic

☐ Other _____

☐ Skin irritant

☐ Lachrymator

☐ Biological

☐ Peroxide

☐ Flammable (FP < 40°C)

☐ Shock sensitive

☒ Carcinogenic - suspect

☐ Radioactive

Sample Allocation/Chain of Possession:

Organization Name Radian

Received By _____ Date Received _____ Time _____

Transported By Wendy Johnson Lab Sample No. 86-02-091

Comments _____

Inclusive Dates of Possession 2-13-86

Organization Name Radian Analytical Services

Received By C. Schumaker Date Received 2-14-86 Time 10:20

Transported By Fedala Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

END

DATE

FILMED

4-88

DTIC